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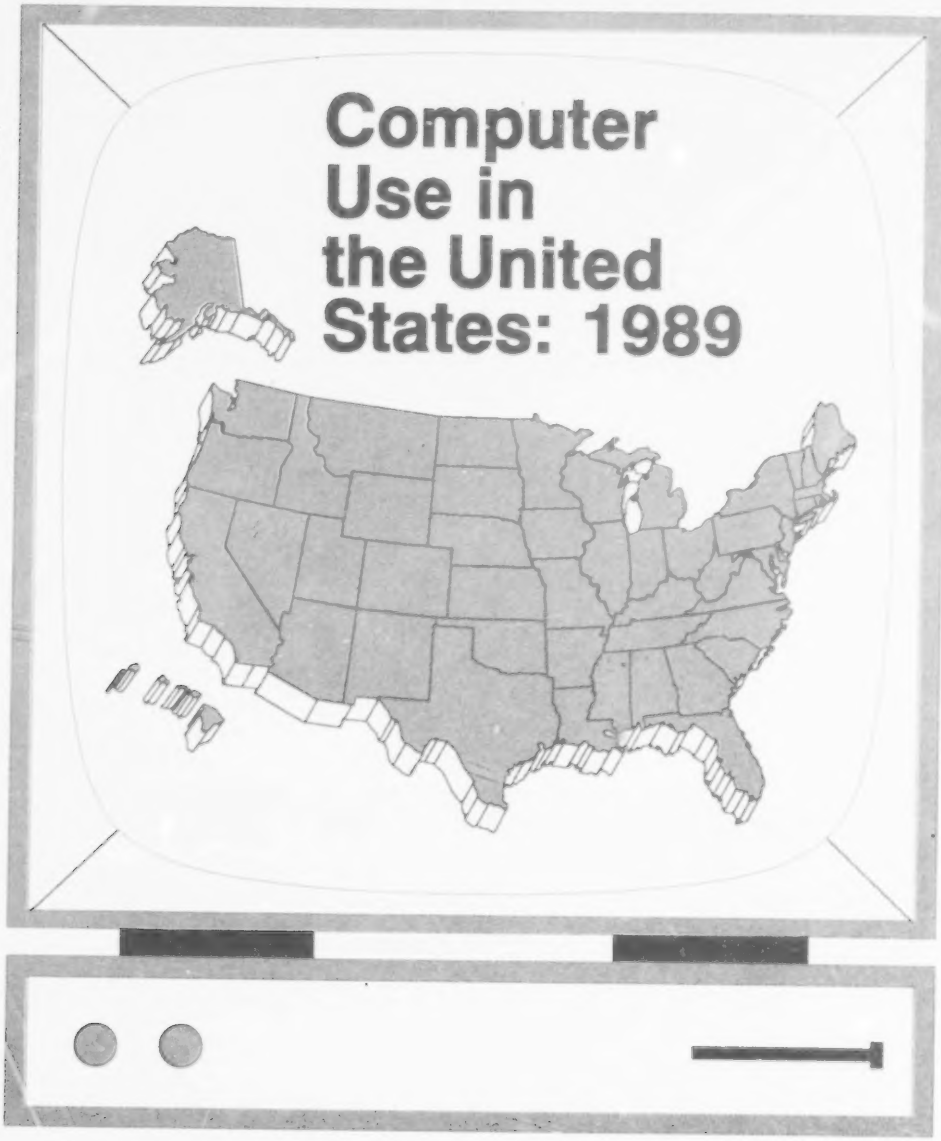
Computer Use in the United States: 1989

by
Robert Kominski



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Computer Use in the United States: 1989

HIGHLIGHTS

(Figures in parentheses denote 90 percent confidence intervals. For details of calculation and interpretation, see Appendix B, Source and Reliability of Estimates.)

- Between 1984 and 1989, there was a substantial increase in the levels of computer ownership and use in the United States.
- In October 1989, 13,683,000, or 15.0 (±.3) percent of all U.S. households reported they had a computer; this is a significant increase from the 8.2 (±.2) percent who reported ownership in 1984.
- Among children 3 to 17 years old, 24,216,000, or 46 (±.6) percent used a computer either at home or at school (some in both places). This was a significant rise from the level of 30.2 (±.5) percent in 1984.
- For children in school, access to computers rose to 46 (±.6) percent in 1989, up from 28 (±.5) percent in 1984.
- About 50,668,000 persons aged 18 and over, 28.1 (±.5) percent of the adult population, reported they use a computer either at home, at work, or at school (or some combination). This was a significant increase from the level of 18.3 (±.5) percent in 1984.
- Of the over 115 million employed adults, 36.8 (±.4) percent said they used a computer at work. This is a significant increase from the 24.6 (±.3) percent reported in 1984.
- By the fall of 1989, computers were a part of many lives: of the 232,790,000 persons aged 3 and over, 74,884,000 (32.2 (±.3) percent) reported using a computer in some way.

INTRODUCTION

Nearly 10 years after their introduction, small "personal" computers are now an established part of many lives. At work, at school, and at home, the computer is a basic tool that many of us use daily. In October 1984, a series of questions was administered in the context of the Current Population Survey (CPS) to assess the level of use and ownership of computers. The report based on that survey, *Computer Use in the United States: 1984,* Series P-23, No. 155, established that even then a significant proportion of homes had computers, and that many individuals used computers in the workplace or at school.

This report is based on a similar set of questions asked as part of the October 1989 CPS. The 5 years that have passed since the original (1984) study have witnessed a wide array of changes in computing hardware, software, and applications. While this report cannot begin to fully describe the multitude of ways that computers affect our lives, it does provide some basic estimates of the levels and kinds of uses of computers in the Nation today.

The tabulations in this report are produced from data collected in the October 1989 CPS. The CPS, a monthly survey of the U.S. civilian noninstitutional population, is designed to provide estimates of the labor force and employment conditions in the Nation. In some months, additional questions are asked on special topics; in October 1989, the National Center for Education Statistics sponsored the inclusion of a series of items on computers. These questions concerned the availability of computers to persons at home and the use of computers when one was present at home, work, or school. Computers may be of any type or size, but it is reasonable to assume that most home use is of the smaller home, or personal, computers ("PC's"). Further information about the survey and the specific questions asked is provided in Appendix A, Survey Definitions and Explanations.

SUMMARY OF NATIONAL ESTIMATES

Computers may be used in any of several different settings. For children, use is possible both at home and in school, while adults may also use a computer at work. The different tables in this report provide information that touch on each of these domains. For example, table 1 shows the number of households that had computers. In October 1989, 13,683,000, or 15.0 percent, of all U.S. households reported that they had a computer; this was a significant increase from the

6,980,000 (8.2 percent) households who reported ownership in 1984.[1] About 29 percent of the computers had been bought in 1988 or the first 10 months of 1989 (since the survey was administered in October of that year). Ownership of a computer was most likely (45.6 percent) in households with yearly incomes of $75,000 or more; only 4.8 percent of households with income below $15,000 owned a computer. Households with school-age children were more than twice as likely as those without to have a computer (25.7 vs. 11.4 percent). Comparison of household estimates with those obtained in 1984 indicate that computer ownership rose in general across many segments of the society.

The past few years have not only witnessed a rise in the number of computers, but an increasing number of applications for these machines as well. Some of these applications require additional components for computers. Respondents were read a short list of "hardware components" (see question 46, appendix C) and were asked to identify which of them their home computer had. Table A shows the distribution of these additional components of home computers. Many persons reported that they had either a floppy or hard disk attached to their computer. Since these mechanisms are the primary means for storing and retreiving data, these large proportions seem reasonable. Many persons also reported having a dot-matrix or laser printer for producing output. Laser printers are newer and costlier, relative to dot-matrix technology, and the number of each reported (1.6 million lasers vs. 7.8 million dot-matrix) reflect this. A large number of computers also had a color monitor and many had a joystick or mouse control. While both of these peripherals have many possible applications, both are commonly used with many computer games. In short, this list of peripherals helps to illustrate the point that home computers are used for a wide array of applications.

A different way to look at computer use is in terms of the numbers of persons who use them. The other tables of this report concentrate on use in this context, with separate tables about children and adults. The results are briefly summarized here. Table 2 shows that 24,216,000, or 46 percent, of children aged 3 to 17 used a computer either at home or school (some in both places). At home, 24.2 percent had a computer available, and 71.1 percent of these children used it. In school, 46 percent of the 47.1 million students enrolled were reported to use a computer. (The survey did not assess the number of students with a school computer available, but simply the number who used one at school.) Both the school and home estimates indicate that access to computers for children was substantially greater than in 1984 (as shown in table B), when 15.3 percent of children had at home, 28 percent had access at school, and 30.2 percent had access in either or both of these places.

[1]About 3.3 percent of the households did not respond to the survey items about computers. This nonresponse has not been removed by imputation; percentages in this report exclude nonresponse.

Table A. **Hardware Components of Home Computers**

(Numbers in thousands)

Component	Number	Percent
All computers	13,683	100.0
Floppy disk drive	10,137	74.1
Hard disk drive	5,613	41.0
Telephone modem	3,149	23.0
Laser printer	1,571	11.5
Dot matrix printer	7,812	57.1
Joystick/mouse control	6,681	48.8
Color monitor	6,962	50.9
Plotter	719	5.3
Don't know	1,127	8.2

Table 4 shows similar access and use data for adults. About 50,668,000 persons aged 18 and over, 28.1 percent of the adult population, reported that they used a computer somewhere, either at home, at work, or at school (or some combination) in 1989. This is up from the 18.3 percent reported in 1984 (as shown in table B). Over 29 million adults (17.3 percent) had a computer at home (compared with 9.1 percent in 1984), and of those, 58.4 percent said they used it. Among the over 115 million employed adults, 36.8 percent said they used a computer on the job, and 43.6 percent of the 14.4 million adults enrolled in school said they used one there; both of these levels represent significant increases from the 1984 levels of 24.6 and 30.8, respectively. Of the 232,790,000 persons aged 3 or above, 74,884,000—nearly one-third of the population—said they used a computer in some way. As with ownership, the 1989 estimates indicate a continuing large-scale general increase in the use of computers since 1984.

ACCESS AND USE BY CHILDREN

About 24.2 percent of all children 3 to 17 years of age had access to a computer at home, and of these, 71.1 percent used the machine; this was a sizable increase over the 15.3 percent who had access at home in 1984. Of course, access and use continue to vary depending upon other life circumstances and situations, much as was true in 1984.

Columns 2 and 3 of table 2 show the number and percent of children of various characteristics who had access to a computer at home. In terms of age, for example, access was more likely for children 13 to 17 years old (27.7 percent) than for children 3 to 7 (17.3). Overall, home access ranged between 16.8 and 31.5 percent for persons between 3 and 17 years of age.

As in 1984, White children were more likely to have a computer at home (26.7 percent) than Black children (10.6 percent), but Whites were not statistically different

from children of other races in their level of access (28.1 percent). Hispanic children were still far less likely to have a computer at home than non-Hispanic children (9.6 vs. 25.9 percent). Boys were also still more likely to have a computer at home than were girls (25.2 percent vs. 23.1).

Regional differences first noted in 1984 continued to exist; 30.4 percent of children in the Northeast had a computer at home, as opposed to only 20.6 percent of the children in the South.

There also continued to be a strong relationship between the educational attainment of the family householder and the presence of a computer. While just 3.6 percent of children in households where the householder had 0 to 8 years of schooling had a computer, nearly half (48.6 percent) of the children in households where the householder had 4 or more years of college had a computer available to them. A similarly strong relationship is seen with family income; just 6.5 percent of children in households with income under $10,000 had a computer, but 62.8 percent of those living in households with income above $75,000 had one. Also as in 1984, children of householders in managerial and professional positions were the most likely to have a computer at home (45.4 percent).

While the general trend was that of increasing access to computers, many differentials across groups remained in 1989. Some of these differences are apparent in usage levels as well. Columns 4 and 5 of table 2 show the use of computers by children who had one at home. Overall, 71.1 percent of children with computers at home were reported to use them; this is a slight decrease from 1984, when 74.2 percent of children with a computer at home said they used it.

Among age groups, use was relatively low among the very young (43.4 percent for persons 3 to 5), but ranged between 62.8 and 81.8 percent for all other ages. Rates of use were higher for Whites than Blacks, but children of other races were not significantly different than either Whites or Blacks. This pattern is different from 1984, when White and Black levels were about the same. As in 1984, however, there was no difference between Hispanics and non-Hispanics in their levels of use. Gender differences, with higher rates for boys, continued to exist in 1989.

As with ownership, use varies strongly with the education of the householder. Children of householders with 4 or more years of college reported usage rates close to 75 percent, while only 53.4 percent of the children of low education householders said they used an available home computer. Similar differences in use were also evident in terms of family income; 56 percent of those in families with less than $10,000 said they used the computer at home, but 77 percent of those with family incomes of $75,000 or more said they used their home computer. As in 1984, family income continues to distinguish levels of access to and use of computers.

For many children, exposure to a computer occurs in the classroom. The data indicate that the overall level of access to computers by children at school has risen substantially since 1984, from 28 percent to 46 percent. Columns 9 and 10 of table 2 show the number and percentage of students using computers at school. Of course, the kinds and levels of use at school are varied, and can range from simple drills or amusement exercises, to serious programming activities or computer-assisted instruction. Additionally, as in 1984, there continued to be some differences between social and demographic groups in terms of the level of use.

In terms of age, persons 9 to 12 had school use rates around the 60 percent level, while only 14.4 percent of 3- to 5-year-olds used a computer at school. In general, however, all ages experienced increases in their level of use, with young children (3 to 7) doubling their level of use since 1984 (13.9 to 29.3 percent).

While increases were the apparent norm for all groups, differences still remain; Whites experience significantly higher levels of school use (48.2 percent) than either Blacks (35.1) or persons of other races (43.6), and non-Hispanic persons had higher levels of use (47.0) than Hispanics (37.5). Unlike 1984, however, males and females were not different in their level of computer use in school - 46 percent.

Regional differences in school use still exist in 1989, but the difference in the level of use between the Midwest and South has gone from 12.6 percentage points to 7.9.

Also, as in 1984, school use appears strongly related to both family income and the education of the family householder. These patterns indicate a possible indirect effect of family socioeconomic status on computer use through the kind of schools people choose or have available for their children. Thus, while it might be

Table B. **Levels of Access and Use of Computers: 1984 and 1989**

(In percent)

Access, use, and age	1984	1989
Households with computer	8.2	*15.0
3 to 17 years:		
Access to a home computer	15.3	*24.2
Use home computer[1]	74.2	*71.1
Use computer at school[2]	28.0	*46.0
Use computer at home or school	30.2	*46.0
18 years and over:		
Access to a home computer	9.1	*17.3
Use home computer[1]	53.3	*58.4
Use computer at school[2]	30.8	*43.6
Use computer at work[3]	24.6	*36.8
Use computer at home, school or work	18.3	*28.1

*Indicates value is significantly different from1984.
[1]Of persons with a computer at home.
[2]Of persons enrolled.
[3]Of persons with a job.

expected that within schools equal use across population subgroups is promoted, observed differences in school use may be due to factors outside, or between, schools.

One way of considering the indirect effect of family background as reflected across schools is by looking at differences between public and private schools. Private school generally involves some direct monetary cost on the part of families, as does the acquisition of a computer. Both items (private schools and computers) might be viewed as investments families may make in furthering the education of their children. Consequently, differences in computer access that are cost related also be reflected by the public-private dimension.

Table C shows the level of computer use by school children, distinguished by grade levels and type of school. In general, private school students have consistently higher levels of computer use at home, in school, and in the combination of both places. Differences in home use, however, are much larger than in school use, indicating that public schools may be doing a reasonable job in keeping up with private schools in providing computer resources to students.

The final two columns of table 2 show the overall rates of computer use when both home and school use are jointly considered. In general, 46 percent of all children use computers, either at home or in school. This is a 50-percent increase since 1984, when 30.2 percent of all children were reported to use a computer in one of these two locales. Many of the differences in access and use already noted are echoed in these data. Most notable are the race and Hispanic origin differences, indicating greater overall usage patterns by Whites and non-Hispanic children. A small estimated difference between males and females is not statistically significant. In addition, strong relationships of use with both family income and education of the householder are also present. These relationships may reflect the fact that the ability to afford a home computer is an important force in determining who ultimately uses them.

Table 3 shows the various uses of home computers that were reported by children. The list of uses is somewhat longer than that used in 1984, reflecting the increase in home computer applications in the last 5 years. Despite the longer list, the most frequently identified use was for games (as it was in 1984), given by 84.3 percent of all children. About 40 percent of children said they used the computer at home for school assignments, and 25 percent said they were "learning to use the computer" (down significantly from the 71.4 percent who gave this response in 1984). About one-fourth of all children said they used a computer for word processing; 12 percent reported using it for graphics. Relatively sophisticated applications, such as bulletin boards, spreadsheets, and electronic mail, were only reported by small proportions of children (2.3, 1.3, and .5 percent, respectively.)

Despite the increased presence of computers among children, there does not appear to be a significant change in the proportion using them at home, or what they are used for. Games are a predominant use, along with schoolwork. A sizable minority of children have begun using computers for word processing activities, presumably school reports and the like. Relatively few children use computers for moderately sophisticated activities like programming and electronic communications.

ACCESS AND USE BY ADULTS

Overall, access and use of computers by adults continued to be somewhat less than that experienced by children; nevertheless, significant proportions of the adult population were using computers in some way in 1989. Tables 4 and 5 detail access and use patterns for persons ages 18 and above, similar to those shown for children in tables 2 and 3. Tables 6 and 7 detail the ways that computers are used by adults in specific occupations and industries.

About 28 percent of the adult population used a computer either at home, at work, or at school in 1989,

Table C. **School and Home Computer Use by Public and Private School Students, Grades K-12: October 1989**

(Numbers in thousands)

Type of school and grade	All students	Use at school		Use at home		Use at home and school	
		Number	Percent	Number	Percent	Number	Percent
Public school:							
All grades	39,938	18,339	45.9	6,890	17.3	4,226	10.6
Grades K-4	16,697	7,239	43.4	2,140	12.8	1,402	8.4
Grades 5-8	12,474	6,805	54.6	2,509	20.1	1,695	13.6
Grades 9-12	10,767	4,295	39.9	2,241	20.8	1,129	10.5
Private school:							
All grades	4,068	2,028	49.9	1,140	28.0	717	17.6
Grades K-4	2,100	988	47.0	447	21.3	264	12.6
Grades 5-8	1,213	717	59.1	411	33.9	296	24.4
Grades 9-12	755	323	42.8	282	37.4	157	20.8

up from 18 percent in 1984. Increased use was observed in each of the three domains separately as well as combined. While 17.3 percent of all adults had a computer in their home, this proportion varied considerably with other characteristics. In terms of age, persons 35 to 44 were most likely to have a home computer (26.9 percent), and persons 65 and older were the least likely (4.6 percent). At least part of this may be because the 35- to 44-year-olds are also among those most likely to have children at home.

The probability of having a computer at home was closely associated with both family income and the education of the individual, with 47.2 percent of persons in households with yearly incomes of $75,000 or more reporting ownership, and 33.7 percent of persons with 4 or more years of college living in a household where a computer was available. Across occupational categories, a computer at home was most likely for persons who held managerial or professional positions (33.2 percent). In terms of regional differences, adults in the South were the least likely to have a computer in their home, just as in 1984.

Not all adults who had a computer in their home actually used it. Overall, 58.4 percent of adults with a home computer reported using it. At least part of the reason for this "nonuse" may be that many home computers are bought for children; higher levels of access in households of with four to five persons as opposed to one to three persons reinforce this point, since these large households also tend to have more children.

Other differences in use among adults are also present in the data. While about two-thirds of persons 25 to 34 years old use an available home computer, only 36 percent of those 65 or older do so. Whites (59.2) had higher rates of use than Blacks (50.6), and Hispanics (54.0) lower rates than persons who were not Hispanic (58.6); neither of these differences existed in 1984. Males (65.2) continued to have higher rates of use than females (51.4), but the difference (13.8 percent) was considerably less than in 1984 (20.3).

As with access, use also increases with the education of the individual; however, unlike access, use is just as likely for persons of the lowest family income category (58.6 percent of those with access) as it is for persons in the highest (60.4 percent). Rates of home use were very high (above 70 percent) among persons who used a computer at work (75.1 percent), had 4 or more years of college (71.2 percent), or who held a managerial or professional position (71.3 percent).

Persons reported a wide variety of uses for their home computers, as detailed in table 5. The most frequent use was word-processing, reported by 61.6 percent of all adults who used a computer at home. Other commonly-reported uses included games (44.1 percent) and household record-keeping (36.2).

One often-speculated use of home computers is the ability to do one's job at home, or to conduct a business from the household. Among persons using a home computer 12.5 percent said they used it to work at home or connect to their computer at work, while 11.4 percent said they used it to run a home-based business. Of the 9.3 million people who said they used a computer at work and also had a computer at home, one-fifth said they used the home computer to do their job. Relatively high levels of use of home computers for work purposes were also reported by persons with 4 or more years of college (17.7 percent), persons in managerial and professional occupations (18.2), and persons employed in manufacturing (18.4) or real estate (18.2). With regard to the use of a home computer for a home-based business, 31.8 percent of persons in agricultural industries gave this response, as did 25.6 percent of those persons who said their occupation was in farming, forestry or fishing, indicating that many of today's family farms have implemented computer technology at some level.

In addition to the now-commonplace uses such as word processing, games and household record-keeping, other activites point to the expanding role of the home computer. These include such uses as databases , desk top publishing and newsletters, bulletin boards, and electronic mail.

Another location of computer use for adults is at school. While there are not nearly as many adults as children in school, Table 4 shows that for those 14.4 million adults who were enrolled (mostly in college) in the fall of 1989 a substantial proportion, 43.6 percent, used a computer at school. Characteristics of persons with relatively high levels of use in school indicate that use was most likely for young adults 18 to 21 (48.4 percent), males (46.5 percent), persons who were not married (47 percent) and persons of other races (53.4 percent). In addition, half (48.5 percent) of persons aged 18 to 21 who had a computer at home and who were enrolled in school said that one of the uses of their home computers was to do schoolwork.

A far more likely locale for computer use by adults is in the workplace. Table 4 indicates that of all adults with a job, over 40 million, or 36.8 percent, said they used a computer at work. This represents a 50-percent increase in the proportion who responded this way in 1984 (24.6 percent).

Use of a computer at work was significantly more likely with higher levels of education; 57.8 percent of persons with 4 or more years of college reported use of a computer at work, as opposed to 29 percent of high school graduates. Among general occupational categories, persons in managerial and professional positions (56.2 percent) and technical and administrative positions (55.1 percent) had by far the highest rates of use at work.

Differences in the level of use of computers at work may reflect as much on the distribution of computers in the workplace as it does on the distribution of persons across different occupations. For example, high rates of computer use at work were reported by Whites (37.8 percent) and persons of other races (36.4), women (43.0), persons with 4 or more years of college (57.8), and those with family incomes of $50,000 or more (52.6).

In the comparison of women and men, the higher rate of use at work among women (which is not mirrored for all women in general) may be determined in part by the type of jobs they hold. Table D shows the number of employed adult men and women by general occupation and industry categories. While the occupational category, "technical, sales, and administrative support" accounts for 19.6 percent of all working men, it represents 43.6 percent of all working women. This category includes such specific occupations as sales clerks, secretaries and administrative clerical workers. Within this category, computer use at work was reported by 58.2 percent of women, as opposed to 49.4 percent of men. Table 6 provides even more detail of this distinction, using intermediate occupation classifications. About 6 percent of all men using computers at work were in one of the two occupations of secretary or other administrative support (including clericals). However, about 35 percent of all the women who used computers at work were in these same occupations.

The second panel of table D shows a similar male-to-female comparison for workers by general industry classifications. The notable aspect of this part of the table is that women register consistently higher levels of computer use at work regardless of industry type. This is likely due to the fact that within an industry many women hold technical or administrative jobs which, as has been shown, tend to have high levels of computer use. In industries such as mining and construction, for example, male workers are more likely to be machine operators or craft workers, and women, office workers, accounting for the very sizable gender differences in computer use. Table D shows that among males in mining and construction, 24.0 and 8.9 percent, respectively, use a computer at work, while for the women in these industries the rates are 68.9 and 47.9 percent, a sizable difference. Another example is in the category of "finance, insurance and real estate", where 78.3 percent of all women used a computer, as compared with 59.3 percent of men. Workers in these industries include persons such as bank tellers and data keyers.

Of course, while many individuals use a computer at work, the types of uses are quite varied. Tables 6 and 7 show the specific uses of computers at work by intermediate occupation and industry categories. Examining table 6 first, it is seen that the most frequently-mentioned use by all workers is word processing, at 14.3 percent. This is true for both men (11.2 percent) and women (18.1) as computer-based word processing programs continue to eliminate traditional typewriters from many offices. In the intermediate occupational category of secretaries, stenographers, and typists, for example, 54 percent said they use a computer for word processing at

Table D. **Computer Use at Work, by Sex, Occupation and Industry: October 1989**

(Persons aged 18 and above. Numbers in thousands)

Occupation and industry	Men				Women			
			Use computer at work				Use computer at work	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All persons	85,543	(X)	18,960	22.2	94,581	(X)	21,285	22.5
All persons with jobs	63,416	100.0	18,960	31.6	52,253	100.0	21,285	43.0
Occupation:								
Managerial/professional	17,061	26.9	9,325	57.4	14,169	27.1	7,371	54.7
Technical, sales, administrative support	12,400	19.6	5,816	49.4	22,783	43.6	12,645	58.2
Service	5,485	8.6	728	14.2	8,871	17.0	640	7.7
Precision, production, craft, and repair	12,674	20.0	1,827	15.2	1,222	2.3	189	16.6
Operators, laborers, fabricators	13,010	20.5	1,149	9.4	4,644	8.9	414	9.6
Farming, forestry, fishing	2,786	4.4	114	4.3	564	1.1	26	4.9
Industry:								
Agriculture, forestery, fishing	2,642	4.2	192	7.3	754	1.4	122	16.2
Mining	557	0.9	128	24.0	103	0.2	69	68.9
Construction	7,165	11.3	602	8.9	715	1.4	326	47.9
Manufacturing	14,562	23.0	4,905	35.4	6,870	13.1	2,463	37.8
Transportation, communication, and public utilities	5,816	9.2	1,662	30.6	2,216	4.2	1,348	64.7
Wholesale and retail trade	12,011	18.9	3,075	27.0	10,782	20.6	2,933	28.9
Finance, insurance, and real estate	3,229	5.1	1,810	59.3	4,653	8.9	3,484	78.3
Services	14,259	22.5	4,964	36.9	23,794	45.5	8,895	39 5
Public administration	3,175	5.0	1,622	53.7	2,364	4.5	1,644	73.1

work. While word processing is the most popular current application, many other activities also have high proportions of use among workers. Between 8 and 9 percent of workers use bookkeeping, inventory control, or spreadsheet programs. Activities such as communications (connecting to other computers and bulletin boards) are used by 9 percent of workers, while electronic mail is used by fewer, about 5.3 percent. More "traditional" computer applications, such as programming, databases, and analysis were also reported by sizable proportions of workers.

Levels and types of use vary considerably across different occupations. Among the major occupation categories, those in executive, administrative and managerial positions have some of the highest rates for specific uses. For example, 23.2 percent of executives use spreadsheets, 14 percent use computer calendar or scheduling programs, and 17.9 percent use communications packages. Among the intermediate occupation categories, however, mathematical and computer scientists tend to have the highest rates for many of the uses listed. This is not too surprising, since over 90 percent of persons in this occupation report that they use a computer at work.

Table 7 shows the range of uses as tabulated by intermediate industry classifications. As with occupations, word processing is a high usage activity in most industries as well. In this table, the relationship between certain types of computer uses and kinds of work are somewhat clearer than in the intermediate occupation table. For example, one of the most common uses of computers in manufacturing is for inventory control. About 13.2 percent of the workers in durable goods report this use, as do 10.2 percent of those in nondurable goods. In the transportation, communications, and other public utilities industry, one often reported use is for communcations (12.7 percent), and in wholesale and retail trade industries the activities of inventory (14.1) and sales (11.3 percent) are the most frequent uses.

The industry with the overall highest level of usage is that of finance, insurance and real estate, where 67.2 percent of all workers say they use a computer. Within this industry, high levels are reported for many specific uses as well, including word processing (28.2 percent), analysis (22.6), bookkeeping (21.3), communications (19.9), and databases (21.0). These levels are among the highest given by any major industry grouping for these uses.

The simultaneous consideration of all possible areas where persons might use computers—home, work, and school—shows that 28.1 percent of the adult population uses a computer in at least one of these places; this is a sizable increase from 1984, when 18.3 percent of all adults said they used a computer in some capacity. Usage rates were highest among persons aged 35 to 44, Whites, and persons of other races, non-Hispanics, and unmarried persons. Computer use is strongly associated with both the education of the individual and family income. High rates of use were reported by persons working full-time, in managerial/professional occupations; and in the finance, insurance, and real estate industry. These data also indicate in general that when all three locales of use are considered, many disparities remain in terms of who uses computers. These distinctions (for example, race differences) do not stem from use patterns in a single setting, but are often apparent in more than one place.

SUMMARY

In the 5 years that have passed since the first report on computer ownership and use, we have seen a continuing increase in both the number of people using computers and the things they use them for. This general pattern of increase is the rule for virtually all segments of the population, and usage levels at home, school and work have all risen accordingly.

The increased availability and use of computers has been brought about primarily because of substantial price reductions and increased applications. Activites such as desktop publishing, computer-assisted design, and electronic mail have all been made possible by hardware and software innovations in the past few years. Uses such as these, now reported by a small but growing number of persons, would have elicited few responses had they been included in the 1984 survey. Some activites have become commonplace among computer users. For example, consider that the proportion of adults with home computers who use them for word processing rose from 32.9 to 61.6 percent between 1984 and 1989.

Despite the increase in the availability and uses of computers, there is still substantial variation between groups in terms of access and use. In terms of home use, much of this variation appears related to income and education. Although substantial price reductions have occurred, home computing equipment still represents a sizable investment for many families. In addition, while the applications for computers are more numerous than even a few years ago, many households still have little, or no, need for a computer.

In fact, two of the highest levels of computer ownership are reported by persons who used a computer at work (31.7 percent), and in households where school-age children were present (25.7 percent). These estimates point, as they did 5 years ago, to two different groups that represent the leading edge of computer users: people who use computers on a daily basis in their job, become comfortable with them and find uses for them at home; and people with children who are trying to better prepare them for the workforce of tomorrow. Of course, as the data show, the computer-based "workforce of tomorrow" is more rapidly approaching than many would have suspected even 5 years ago.

One cannot say with certainty that the growth of computer ownership and use will continue at the same healthy rate of the past 5 years. Nevertheless, innovation and improvements in this industry continue to occur at a rapid pace. Small inexpensive desk-top computers have now reached the point where they are capable of performing much faster and more efficiently than many of the old, large "mainframe" computers which ruled the computer industry for so many years. Advances in software development continue to bring many tasks and jobs into a computer based or assisted context. Continued improvements such as these may well eventually make computers as commonplace as calculators or telephones. Future studies of this topic will allow us to determine the progress of this technology's diffusion.

USER COMMENTS

We are interested in your reaction to the usefulness of this information, and to the content of the questions used to provide the results contained in this report. (Appendix C contains a facsimile of the questionnaire.) We welcome your recommendations for improving our survey work. If you have suggestions or comments, please send them to:

Current Survey Comments
Population Division
Bureau of the Census
Washington, DC 20233

Table 1. **Households with Computers and Year of Purchase, by Presence of Children, Family Income, and Age of Householder: October 1989**

(Numbers in thousands)

Subject	All households	With computer		Year of purchase					
		Number	Percent[1]	1988 and 1989	1986 and 1987	1984 and 1985	Before 1984	Don't know	No response
Total	94,061	13,683	15.0	3,909	4,610	2,712	1,510	483	3,065
Family Income:									
Less than $10,000	18,477	863	4.8	282	272	153	85	31	446
$10,000 - 14,999	11,138	530	4.9	158	158	105	43	33	261
$15,000 - 19,999	15,817	1,430	9.3	418	459	251	170	58	366
$20,000 - 24,999	7,505	1,066	14.5	278	334	218	145	44	158
$25,000 - 34,999	12,694	2,226	17.9	619	804	401	244	76	277
$35,000 - 49,999	12,287	3,328	27.8	1,013	1,133	645	358	95	295
$50,000 - 74,999	3,773	1,260	34.3	330	423	290	153	37	102
$75,000 or more	4,839	2,129	45.6	604	725	490	227	50	169
Income not reported	7,531	851	13.0	207	301	159	86	59	990
Presence of children:									
Some children 6 - 17	24,007	5,998	25.7	1,573	2,116	1,282	640	179	643
No children 6 - 17	70,054	7,685	11.4	2,336	2,494	1,431	870	304	2,422
Age of householder:									
Under 25 years	5,354	485	9.3	184	143	67	45	16	153
25 - 34 years	21,282	3,112	15.1	1,113	1,042	440	268	107	616
35 - 44 years	20,322	4,832	24.5	1,330	1,644	990	525	152	604
45 - 54 years	14,458	3,181	22.9	792	1,070	765	394	103	563
55 years and over	32,644	2,073	6.6	490	710	450	278	105	1,129

[1]Nonrespondents not included in base.

Table 2. Use of Computers at Home and School by Persons 3 to 17 Years Old: October 1989

(Numbers in thousands)

Characteristic	All persons	With computer at home					Presence of computer not reported	Enrolled in school				Uses computer any place	
		Total	Percent[1]	Uses it	Percent[1]	Does not use it		Total	Uses computer	Percent[1]	Does not use computer	Number	Percent
Total, 3 to 17 years old	52,667	12,082	24.2	8,547	71.1	3,468	2,677	47,066	20,664	46.0	24,263	24,216	46.0
3 - 5 years	11,039	1,765	16.8	766	43.4	1,000	525	6,235	868	14.4	5,157	1,492	13.5
6 years	3,713	703	19.8	441	62.8	262	169	3,653	1,386	39.2	2,149	1,569	42.3
7 years	3,709	721	20.4	496	68.8	225	174	3,667	1,711	48.1	1,843	1,885	50.8
8 years	3,585	790	23.0	595	75.3	195	152	3,564	1,884	54.2	1,591	2,060	57.5
9 years	3,624	808	23.5	622	77.1	185	185	3,601	2,075	59.5	1,410	2,224	61.4
10 years	3,574	919	27.0	733	79.7	187	173	3,552	2,142	62.4	1,293	2,315	64.8
11 years	3,475	854	25.9	688	80.6	166	171	3,456	1,974	59.0	1,371	2,180	62.8
12 years	3,440	942	28.9	745	79.2	196	177	3,413	1,847	56.1	1,444	2,114	61.5
13 years	3,190	950	31.5	775	81.8	173	171	3,177	1,669	54.0	1,420	1,962	61.5
14 years	3,298	851	27.3	669	78.6	182	185	3,279	1,381	43.7	1,779	1,701	51.6
15 years	3,274	916	29.9	690	77.5	201	207	3,214	1,218	42.8	1,630	1,556	47.5
16 years	3,313	911	29.0	678	76.1	212	172	3,179	1,192	41.2	1,704	1,539	46.5
17 years	3,433	951	29.6	649	69.5	285	217	3,075	1,316	47.2	1,472	1,618	47.1
Race:													
White	42,262	10,773	26.7	7,685	71.7	3,036	1,914	37,756	17,463	48.2	18,787	20,662	48.9
Black	8,212	806	10.6	518	65.0	279	604	7,387	2,416	35.1	4,461	2,622	31.9
Other	2,193	570	28.1	344	69.3	153	159	1,922	785	43.6	1,015	932	42.5
Hispanic origin:													
Hispanic	5,734	514	9.6	326	64.3	181	351	4,868	1,724	37.5	2,873	1,853	32.3
Non-Hispanic	46,933	11,568	25.9	8,222	71.4	3,287	2,326	42,198	18,940	47.0	21,390	22,363	47.7
Sex:													
Male	26,989	6,470	25.2	4,756	74.0	1,673	1,338	24,118	10,607	46.0	12,451	12,540	46.5
Female	25,678	5,612	23.1	3,791	67.9	1,795	1,339	22,948	10,057	46.0	11,812	11,676	45.5
Uses computer at school	20,664	6,115	30.4	4,995	81.9	1,103	549	20,664	20,664	100.0	-	20,664	100.0
Uses computer at home[2]	8,547	8,547	100.0	8,547	100.0	-	-	8,355	4,995	60.7	3,230	8,547	100.0
For games	7,207	7,207	100.0	7,204	100.0	-	-	7,068	4,256	60.9	2,732	7,206	100.0
For school assignments	3,378	3,378	100.0	3,375	100.0	-	-	3,363	2,275	68.4	1,051	3,378	100.0
To learn computers	2,129	2,129	100.0	2,126	100.0	-	-	2,082	1,372	66.9	677	2,129	100.0
Other use	517	450	87.1	517	100.0	-	-	493	306	64.5	169	517	99.9
Householder type:													
Married couple	39,005	10,483	28.3	7,522	72.1	2,910	1,999	34,930	15,923	47.6	17,535	19,039	48.8
Female householder, no spouse present	11,500	1,208	11.0	764	64.0	430	551	10,262	4,015	41.2	5,724	4,328	37.6
Male householder, no spouse present	2,162	390	19.2	261	67.0	129	128	1,873	726	42.0	1,004	849	39.3
Region:													
Northeast	9,586	2,686	30.4	1,916	71.8	753	744	8,674	4,012	49.1	4,164	4,707	49.1
Midwest	13,248	3,084	24.0	2,209	72.0	860	404	11,859	5,710	50.0	5,707	6,568	49.6
South	18,369	3,574	20.6	2,486	69.7	1,081	977	16,516	6,651	42.1	9,139	7,795	42.4
West	11,464	2,738	25.1	1,937	71.5	774	552	10,018	4,291	45.0	5,253	5,146	44.9
Educational attainment of householder:													
Elementary: 0 - 8 years	4,821	162	3.6	87	53.4	75	258	4,090	1,250	32.8	2,556	1,284	26.6
High school: 1 - 3 years	6,475	560	9.2	326	59.1	226	372	5,641	2,071	38.5	3,304	2,207	34.1
High school: 4 years	19,790	3,115	16.6	2,113	68.3	981	994	17,597	7,691	45.7	9,138	8,594	43.4
College: 1 - 3 years	10,095	2,934	30.6	2,075	71.0	848	499	9,168	4,355	49.8	4,406	5,248	52.0
College: 4 years or more	11,485	5,312	48.6	3,946	74.7	1,337	554	10,571	5,281	52.1	4,857	6,883	59.9

Table 2. Use of Computers at Home and School by Persons 3 to 17 Years Old: October 1989—Continued

(Numbers in thousands)

Characteristic	All persons	With computer at home					Presence of computer not reported	Enrolled in school				Uses computer any place	
		Total	Percent[1]	Uses it	Percent[1]	Does not use it		Total	Uses computer	Percent[1]	Does not use computer	Number	Percent
Empolyment status of householder:													
Employed	43,626	11,190	27.0	8,049	72.3	3,090	2,153	39,257	17,811	47.3	19,817	21,185	48.6
Full-time	41,405	10,772	27.4	7,743	72.2	2,980	2,045	37,293	16,997	47.5	18,753	20,228	48.9
Part-time	2,221	418	19.8	306	73.7	110	108	1,964	814	43.3	1,064	957	43.1
Unemployed	1,967	195	10.6	106	56.1	83	128	1,698	604	37.9	989	646	32.9
Not in labor force	7,074	698	10.5	392	57.0	296	396	6,111	2,249	39.4	3,456	2,385	33.7
Family income:													
Less than $10,000	8,639	529	6.5	293	56.4	226	538	7,410	2,586	36.8	4,447	2,710	31.4
$10,000 - 14,999	5,141	402	8.1	263	66.3	134	143	4,447	1,763	41.4	2,500	1,874	36.5
$15,000 - 19,999	8,415	1,180	14.5	783	66.6	393	261	7,297	3,150	44.9	3,870	3,492	41.5
$20,000 - 24,999	4,205	891	22.0	641	72.5	244	148	3,756	1,793	49.2	1,854	2,058	48.9
$25,000 - 34,999	8,466	2,124	26.2	1,489	70.4	625	351	7,626	3,592	48.8	3,768	4,216	49.8
$35,000 - 49,999	8,615	3,169	38.0	2,253	71.3	907	285	7,977	3,861	50.3	3,813	4,807	55.8
$50,000 - 74,999	2,576	1,169	47.9	833	71.8	327	132	2,431	1,163	50.1	1,160	1,519	59.0
$75,000 or more	3,236	1,943	62.8	1,488	77.0	444	144	3,083	1,660	55.9	1,308	2,219	68.6
Income not reported	3,374	675	25.0	505	74.9	169	676	3,040	1,096	41.5	1,542	1,322	39.2
Household size:													
1-3 persons	11,034	1,981	18.9	1,473	74.7	498	561	9,766	4,202	45.5	5,025	4,840	43.9
4-5 persons	32,044	8,165	26.8	5,822	71.7	2,298	1,586	28,740	13,051	47.4	14,497	15,450	48.2
6-7 persons	7,837	1,599	21.6	1,100	69.0	493	426	7,024	2,884	43.1	3,804	3,342	42.7
8 Persons or more	1,752	337	20.5	153	46.0	179	104	1,536	527	36.0	936	584	33.3
Occupation of householder:													
Managerial and professional	12,378	5,350	45.4	3,925	73.6	1,406	582	11,459	5,769	52.4	5,245	7,354	59.4
Technical, sales, and administrative support	9,279	2,545	29.0	1,807	71.4	724	500	8,411	3,781	47.0	4,267	4,572	49.3
Service	4,603	561	12.9	356	64.1	199	249	4,100	1,652	42.1	2,270	1,809	39.3
Precision production, craft, and repair	8,065	1,427	18.6	1,002	70.6	418	371	7,169	3,174	46.1	3,708	3,609	44.8
Operators, laborers, and fabricators	8,542	963	12.0	650	68.2	303	485	7,445	2,979	42.2	4,087	3,273	38.3
Farming, forestry, and fishing	1,833	283	16.0	196	69.5	86	60	1,611	711	45.8	842	775	42.2
Never worked / not in labor force / Armed Forces	7,964	953	12.7	612	64.8	332	430	6,871	2,599	40.3	3,844	2,824	35.5
Industry of householder:													
Agriculture	1,691	289	17.4	197	68.4	91	32	1,470	676	47.1	759	739	43.7
Mining	470	111	23.8	85	76.7	26	3	430	175	42.3	239	224	47.7
Construction	4,476	703	16.6	500	71.4	200	225	3,940	1,759	46.4	2,029	1,991	44.5
Manufacturing	10,595	2,554	25.3	1,833	72.3	703	517	9,534	4,123	45.3	4,986	4,904	46.3
Transportation communication, and other public utilities	4,096	1,039	27.0	715	69.2	318	242	3,750	1,702	47.7	1,869	2,024	49.4
Wholesale and retail trade	7,314	1,576	22.7	1,133	72.2	436	355	6,448	2,835	46.1	3,319	3,311	45.3
Finance, insurance, and real estate	2,052	720	37.1	515	71.5	205	112	1,891	888	49.0	926	1,100	53.6
Services	11,347	3,423	31.9	2,441	71.8	961	604	10,277	4,760	48.2	5,125	5,730	50.5
Forestry and fisheries	130	48	39.3	38	78.7	10	7	115	52	47.7	57	65	50.0
Public administration	2,533	666	27.9	480	72.2	185	149	2,340	1,096	49.7	1,111	1,303	51.4
Never worked / not in labor force / Armed Forces	7,964	953	12.7	612	64.8	332	430	6,871	2,599	40.3	3,844	2,824	35.5

[1]Nonrespondents not included in base

[2]Multiple uses allowed by respondents.

Table 3. **Purposes and Frequency of Computer Use at Home by Persons 3 to 17 Years Old: October 1989**

(Numbers in thousands)

Characteristic	All persons	Persons using computer at home	Percent	Uses reported[1]									
				Word processing	School	Bulletin board	Learning to use	Spread-sheet	Program-ming	Graphics	Video games	Electronic mail	Other/ don't know
Total, 3 to 17 years old	52,667	8,547	16.2	24.8	39.5	2.3	24.9	1.3	5.8	11.7	84.3	0.5	9.3
3 - 5 years	11,039	766	6.9	4.7	4.3	0.5	32.0	0.0	0.7	3.7	83.6	0.0	9.4
6 years	3,713	441	11.9	4.8	10.9	0.0	33.1	0.0	0.5	5.0	88.4	0.0	9.1
7 years	3,709	496	13.4	9.3	14.1	0.0	25.8	0.0	1.0	7.1	91.3	0.0	9.5
8 years	3,585	595	16.6	11.4	23.4	0.3	30.9	0.0	2.0	8.6	89.1	0.2	9.4
9 years	3,624	622	17.2	17.5	29.9	1.1	24.9	0.3	3.1	10.0	90.4	0.8	11.9
10 years	3,574	733	20.5	22.9	39.3	1.0	26.5	1.0	4.4	15.4	88.7	0.3	6.5
11 years	3,475	688	19.8	19.6	40.3	2.6	26.6	1.5	3.3	13.7	87.1	0.3	6.3
12 years	3,440	745	21.7	23.5	46.8	2.3	23.8	0.8	5.6	12.9	86.6	0.1	6.6
13 years	3,190	775	24.3	33.2	52.9	5.7	29.8	2.2	9.4	15.9	84.0	0.8	5.7
14 years	3,298	669	20.3	36.6	56.1	3.3	21.4	1.3	7.2	14.5	83.9	1.6	5.4
15 years	3,274	690	21.1	37.7	57.2	4.5	19.4	2.2	10.6	12.6	80.6	0.3	11.3
16 years	3,313	678	20.5	41.3	59.0	2.5	14.0	1.5	9.4	13.7	74.5	0.4	9.7
17 years	3,433	649	18.9	48.8	62.9	3.9	17.4	5.4	14.6	15.7	71.6	1.2	22.5
Race:													
White	42,262	7,685	18.2	25.5	39.4	2.3	24.9	1.4	5.7	12.4	84.8	0.5	9.2
Black	8,212	518	6.3	12.5	41.1	1.0	23.4	0.0	7.3	6.2	79.5	0.0	12.0
Other	2,193	344	15.7	27.9	40.1	2.6	26.2	1.7	4.4	4.9	79.9	0.3	9.3
Hispanic origin:													
Hispanic	5,734	326	5.7	19.3	43.9	4.0	30.7	1.8	7.7	13.8	81.9	1.2	9.2
Non-Hispanic	46,933	8,222	17.5	25.0	39.3	2.2	24.7	1.3	5.7	11.7	84.4	0.5	9.4
Sex:													
Male	26,989	4,756	17.6	23.1	38.3	2.5	24.0	1.6	7.3	11.6	87.7	0.6	8.9
Female	25,678	3,791	14.8	26.8	41.1	2.0	26.0	0.9	3.8	11.9	80.1	0.3	9.9
Uses computer at school	20,664	4,995	24.2	26.8	45.5	2.7	27.5	1.6	6.8	13.3	85.2	0.5	9.9
Household type:													
Married couple	39,005	7,522	19.3	25.1	39.3	2.2	24.2	1.3	5.5	11.9	84.5	0.5	9.1
Female householder no spouse present	11,500	764	6.6	21.2	44.4	3.1	29.5	2.0	9.9	11.5	82.6	0.0	11.1
Male householder no spouse present	2,162	261	12.1	26.4	31.4	3.1	30.7	0.8	2.7	8.4	84.7	1.1	11.5
Region:													
Northeast	9,586	1,916	20.0	27.4	40.2	2.7	28.8	1.5	5.7	13.3	85.7	0.7	9.3
Midwest	13,248	2,209	16.7	22.9	37.1	1.8	22.0	1.4	5.6	12.1	86.0	0.4	8.6
South	18,369	2,486	13.5	21.0	39.6	2.7	26.0	1.1	6.9	11.7	83.2	0.6	11.5
West	11,464	1,937	16.9	29.1	41.5	1.9	23.0	1.2	4.4	9.9	82.4	0.1	7.5
Educational attainment of householder:													
Elementary: 0-8 years	4,821	87	1.8	23.0	42.5	0.0	20.7	6.9	8.0	11.5	88.5	0.0	9.2
High school: 1-3 years	6,475	326	5.0	13.2	29.8	1.5	22.1	0.3	11.3	14.1	80.4	0.3	12.3
High school: 4 years	19,790	2,113	10.7	17.2	38.3	2.6	25.5	1.4	7.2	9.1	85.3	0.7	9.8
College: 1-3 years	10,095	2,075	20.6	22.1	37.8	1.6	26.8	1.3	6.2	9.8	84.9	0.3	8.8
College: 4 years or more	11,485	3,946	34.4	31.2	41.8	2.6	23.9	1.2	4.2	13.9	83.7	0.5	9.1
Empolyment status of householder:													
Employed	43,626	8,049	18.5	25.0	39.5	2.4	24.8	1.3	5.8	12.2	84.8	0.5	9.1
Full-time	41,405	7,743	18.7	25.1	39.8	2.4	24.7	1.4	5.9	12.3	84.8	0.5	9.1
Part-time	2,221	306	13.8	22.2	30.4	2.0	28.8	1.0	4.6	8.8	85.9	1.0	9.5
Unemployed	1,967	106	5.4	10.4	35.8	0.9	30.2	1.9	1.9	0.0	76.4	0.0	10.4
Not in labor force	7,074	392	5.5	23.5	41.1	0.8	25.3	0.8	6.4	6.4	76.0	0.0	14.3

Table 3. **Purposes and Frequency of Computer Use at Home by Persons 3 to 17 Years Old: October 1989**—Continued

(Numbers in thousands)

Characteristic	All persons	Persons using computer at home	Percent	Uses reported[1]									
				Word processing	School	Bulletin board	Learning to use	Spread-sheet	Program-ming	Graphics	Video games	Electronic mail	Other/ don't know
Family income:													
Less than $10,000	8,639	293	3.4	25.9	36.2	4.4	36.5	1.0	3.8	14.0	75.8	2.0	9.6
$10,000 - 14,999	5,141	263	5.1	12.9	35.0	1.9	33.8	0.0	8.7	9.5	78.3	0.0	8.7
$15,000 - 19,999	8,415	783	9.3	17.5	32.2	1.3	26.4	1.5	9.6	10.0	82.6	0.0	9.5
$20,000 - 24,999	4,205	641	15.2	19.2	27.1	0.9	26.1	1.2	3.7	7.2	89.9	0.5	8.7
$25,000 - 34,999	8,466	1,489	17.6	21.8	39.8	2.4	20.8	0.8	5.5	11.7	85.3	0.8	9.2
$35,000 - 49,999	8,615	2,253	26.2	25.9	41.5	2.6	26.1	2.4	5.7	13.0	86.6	0.3	9.2
$50,000 - 74,999	2,576	833	32.3	28.8	39.7	1.1	19.0	0.2	4.1	11.4	85.6	0.0	7.0
$75,000 or more	3,236	1,488	46.0	33.1	46.8	3.0	26.5	1.2	5.3	13.0	80.0	1.0	9.8
Income not reported	3,374	505	15.0	20.6	39.6	2.6	21.8	0.6	7.5	11.3	84.8	0.0	14.1
Household size:													
1-3 persons	11,034	1,473	13.3	27.1	43.3	3.3	30.8	3.1	8.9	12.6	84.1	0.8	9.8
4-5 persons	32,044	5,822	18.2	24.6	38.8	2.3	24.4	0.9	5.4	12.0	84.0	0.5	10.0
6-7 persons	7,837	1,100	14.0	21.5	39.6	1.1	21.0	1.2	3.8	8.8	87.0	0.2	4.8
8 persons or more	1,752	153	8.7	30.1	28.8	1.3	13.7	1.3	4.6	15.7	79.7	0.7	14.4
Occupation of householder:													
Managerial and professional	12,378	3,925	31.7	30.4	40.9	2.3	25.1	1.3	4.6	12.7	83.2	0.5	8.7
Technical, sales, and administrative support	9,279	1,807	19.5	24.2	40.0	3.1	24.5	1.3	6.3	12.1	86.6	0.9	10.2
Service	4,603	356	7.7	12.1	37.4	2.0	21.6	1.1	6.7	5.6	86.2	0.3	7.6
Precision production, craft, and repair	8,065	1,002	12.4	15.0	36.2	2.5	27.8	1.7	6.9	12.2	87.5	0.3	10.2
Operators, laborers, and fabricators	8,542	650	7.6	17.7	34.9	1.1	25.4	1.5	7.7	12.2	82.9	0.5	8.6
Farming, forestry, and fishing	1,836	196	10.7	21.9	40.3	1.5	20.4	2.0	10.7	14.8	88.8	0.0	7.1
Never worked/not in labor force/Armed Forces	7,964	612	7.7	21.9	40.7	0.7	22.9	0.5	5.6	5.7	78.4	0.0	12.3
Industry of householder:													
Agriculture	1,691	197	11.6	25.9	44.2	1.5	21.8	2.0	8.1	15.2	87.8	0.5	7.6
Mining	470	85	18.1	20.0	40.0	3.5	25.9	1.2	5.9	9.4	91.8	0.0	12.9
Construction	4,476	500	11.2	12.8	34.4	2.0	22.0	0.8	3.8	8.8	79.4	0.0	14.6
Manufacturing	10,595	1,833	17.3	22.8	37.7	2.5	28.3	2.0	5.9	12.5	85.7	0.3	9.3
Transportation, communication, and other public utilities	4,096	715	17.5	25.5	40.0	2.5	20.3	0.7	5.7	10.1	84.1	0.6	10.5
Wholesale and retail trade	7,314	1,133	15.5	21.3	38.9	2.0	25.8	0.9	5.6	12.1	87.6	0.9	9.4
Finance, insurance and real estate	2,052	515	25.1	26.6	46.6	2.5	26.2	1.6	6.0	10.9	84.5	1.6	6.8
Services	11,347	2,441	21.5	29.7	41.0	2.3	24.6	1.0	5.6	13.1	83.3	0.5	8.4
Forestry and fisheries	130	38	29.2	23.7	36.8	0.0	21.1	0.0	7.9	5.3	94.7	0.0	2.6
Public administration	2,533	480	18.9	28.8	33.8	4.0	24.0	3.1	7.5	14.8	86.0	0.2	7.5
Never worked/not in labor force/Armed Forces	7,964	612	7.7	21.9	40.7	0.7	22.9	0.5	5.6	5.7	78.4	0.0	12.3

[1]Multiple uses allowed by respondents.

Table 4. **Use of Computers at Home, School, and Work by Persons 18 Years and Older: October 1989**

(Numbers in thousands)

Characteristic	All persons	With computer at home					Presence of computer not reported	Enrolled in school				With a job				Uses computer any place	
		Total	Percent[1]	Uses it	Percent[1]	Does not use it		Total	Uses computer	Percent[1]	Does not use computer[1]	Total	Uses computer	Percent[1]	Does not use computer	Number	Percent
Total 18 years old and over	180,123	29,615	17.3	16,758	58.4	11,919	8,855	14,399	5,564	43.6	7,187	115,669	40,245	36.8	69,246	50,668	28.1
18 - 21 years	14,189	2,948	22.2	1,683	58.5	1,196	882	6,755	2,922	48.4	3,114	8,365	1,803	22.6	6,186	5,107	36.0
22 - 24 years	11,072	1,521	14.5	899	61.2	569	594	2,207	871	44.2	1,100	8,334	2,917	36.7	5,032	3,922	35.4
25 - 34 years	42,849	6,643	16.3	4,294	66.9	2,128	2,074	3,208	1,107	39.5	1,693	34,417	13,391	40.9	19,384	15,412	36.0
35 - 44 years	36,384	9,354	26.9	5,517	60.5	3,600	1,588	1,494	470	35.5	853	30,004	12,085	42.4	16,448	14,272	39.2
45 - 54 years	24,925	5,468	23.1	2,872	54.2	2,428	1,278	562	158	32.8	323	19,541	6,716	36.6	11,632	7,771	31.2
55 - 64 years	21,399	2,391	11.8	1,054	46.5	1,213	1,188	118	29	29.7	68	11,630	2,910	27.0	7,885	3,410	15.9
65 years old and over	29,306	1,290	4.6	440	36.0	784	1,251	55	7	15.7	35	3,378	421	13.6	2,679	774	2.6
Race:																	
White	154,236	26,902	18.3	15,462	59.2	10,668	7,213	12,084	4,709	43.6	6,087	100,074	35,977	37.8	59,156	45,264	29.4
Black	20,007	1,573	8.4	733	50.6	716	1,216	1,568	506	38.9	796	11,767	2,990	27.6	7,856	3,673	18.4
Other	5,881	1,141	20.9	563	51.3	535	426	747	349	53.4	304	3,828	1,278	36.4	2,233	1,732	29.5
Hispanic origin:																	
Hispanic	13,301	1,005	8.0	508	54.0	434	758	972	323	37.7	534	8,449	1,779	22.5	6,144	2,246	16.9
Non-Hispanic	166,823	28,611	18.0	16,249	58.6	11,485	8,097	13,427	5,241	44.1	6,654	107,219	38,466	37.9	63,102	48,422	29.0
Sex:																	
Male	85,543	15,116	18.5	9,564	65.2	5,102	3,699	6,648	2,773	46.5	3,191	63,416	18,960	31.6	41,080	24,266	28.4
Female	94,581	14,500	16.2	7,194	51.4	6,817	5,156	7,751	2,791	41.1	3,996	52,253	21,285	43.0	28,166	26,402	27.9
Marital status:																	
Married	108,442	20,602	19.9	11,576	57.7	8,495	5,012	3,480	1,110	36.4	1,938	72,110	25,928	37.8	42,676	30,942	28.5
Single	38,979	6,312	17.3	3,772	62.1	2,307	2,445	9,919	4,144	47.0	4,671	27,011	8,764	34.5	16,652	13,482	34.6
Divorced, widowed, or separated	32,703	2,702	8.6	1,410	55.8	1,117	1,398	1,000	310	34.9	579	16,548	5,552	35.9	9,918	6,244	19.1
Uses computer at work	40,245	12,563	31.7	9,324	75.1	3,095	646	3,580	1,456	43.4	1,900	40,245	40,245	100.0	-	40,245	100.0
Uses computer at home	16,758	16,758	100.0	16,758	100.0	-	-	3,225	1,646	53.4	1,436	13,818	9,324	67.9	4,405	16,758	100.0
Household type:																	
Married couple	121,237	23,954	20.8	13,288	56.9	10,047	6,031	9,021	3,604	45.1	4,388	80,139	27,944	36.7	48,248	35,848	29.6
Female householder no spouse present	37,283	2,888	8.1	1,614	59.6	1,094	1,722	3,522	1,170	38.0	1,910	20,043	7,253	38.6	11,540	8,688	23.3
Male householder no spouse present	21,603	2,773	13.5	1,856	70.5	778	1,102	1,857	790	47.0	890	15,487	5,048	34.8	9,458	6,132	28.4
Region:																	
Northeast	38,138	6,872	19.5	3,546	53.5	3,088	2,869	2,913	1,083	44.9	1,331	23,845	8,138	36.9	13,923	10,305	27.0
Midwest	43 785	6,855	16.2	3,928	59.2	2,707	1,553	3,767	1,558	46.0	1,827	28,578	9,746	35.8	17,515	12,555	28.7
South	61,691	8,957	15.2	4,995	57.5	3,692	2,614	4,566	1,750	42.5	2,372	39,180	13,446	36.0	23,943	16,489	26.7
West	36,510	6,931	20.0	4,289	63.8	2,432	1,818	3,154	1,173	41.5	1,657	24,066	8,916	39.1	13,865	11,319	31.0
Educational attainment:																	
Elementary: 0 - 8 years	18,249	496	2.9	51	12.1	372	907	122	7	8.1	77	5,829	165	3.1	5,114	212	1.2
High school: 1 - 3 years	21,141	1,303	6.5	409	33.8	802	1,028	1,308	428	37.6	709	10,112	929	9.8	8,530	1,572	7.4
High school: 4 years	70,205	8,680	13.0	3,804	45.6	4,534	3,593	3,093	1,027	37.6	1,704	46,243	12,665	29.0	31,087	15,509	22.1
College: 1 - 3 years	35,617	7,929	23.4	4,664	60.5	3,049	1,715	7,172	3,003	46.9	3,401	25,539	11,048	45.5	13,244	15,078	42.3
College: 4 years or more	34,913	11,208	33.7	7,830	71.2	3,162	1,612	2,705	1,100	45.9	1,296	27,947	15,438	57.8	11,271	18,298	52.4
Employment status:																	
Employed	115,669	23,055	20.9	13,818	61.6	8,612	5,357	8,604	3,001	39.1	4,684	115,669	40,245	36.8	69,246	45,825	39.6
Full-time	97,811	19,246	20.6	11,606	62.0	7,101	4,481	4,305	1,172	31.1	2,602	97,811	36,705	39.6	56,003	40,170	41.1
Part-time	17,858	3,808	22.4	2,211	59.4	1,511	875	4,299	1,829	46.8	2,082	17,858	3,539	21.1	13,243	5,655	31.7
Unemployed	5,734	731	13.5	400	58.4	285	303	536	200	42.0	277	-	-	0.0	-	548	9.6
Not in labor force	58,721	5,830	10.5	2,540	45.7	3,022	3,195	5,259	2,363	51.5	2,227	-	-	0.0	-	4,295	7.3

Table 4. **Use of Computers at Home, School, and Work by Persons 18 Years and Older: October 1989**—Continued

(Numbers in thousands)

Characteristic	All persons	With computer at home					Presence of computer not reported	Enrolled in school				With a job				Uses computer any place	
		Total	Percent[1]	Uses it	Percent[1]	Does not use it		Total	Uses computer	Percent[1]	Does not use computer[1]	Total	Uses computer	Percent[1]	Does not use computer	Number	Percent
Family income:																	
Less than $10,000	28,163	1,623	6.1	889	58.6	627	1,503	2,258	930	46.5	1,072	10,498	1,765	18.0	8,038	2,915	10.4
$10,000 - 14,999	19,572	926	4.9	485	54.2	410	668	1,131	381	38.6	607	9,816	1,865	20.2	7,355	2,385	12.2
$15,000 - 19,999	29,171	2,798	9.9	1,472	55.1	1,198	970	1,832	681	40.8	986	18,607	5,029	28.3	12,752	6,250	21.4
$20,000 - 24,999	14,781	2,125	14.9	1,147	56.4	887	496	1,077	433	44.1	549	10,640	3,534	34.7	6,660	4,367	29.5
$25,000 - 34,999	26,316	4,613	18.1	2,472	55.5	1,983	881	2,099	751	40.6	1,097	19,733	7,367	38.8	11,627	8,845	33.6
$35,000 - 49,999	27,196	7,475	28.5	4,359	59.9	2,916	930	2,539	1,000	44.0	1,273	21,710	10,050	48.1	10,839	12,186	44.8
$50,000 - 74,999	8,963	2,976	34.6	1,845	63.2	1,073	360	1,043	410	44.0	522	7,260	3,673	52.7	3,292	4,607	51.4
$75,000 or more	11,608	5,229	47.2	3,106	60.4	2,033	530	1,406	639	50.9	616	8,989	4,503	52.5	4,068	6,023	51.9
Income not reported	14,352	1,848	15.6	981	55.3	792	2,518	1,014	340	42.2	466	8,416	2,459	34.8	4,616	3,090	21.5
Household size:																	
1-3 persons	118,759	15,010	13.3	9,361	64.3	5,187	5,750	7,704	2,948	42.6	3,969	72,083	26,337	38.7	41,646	31,553	26.6
4-5 persons	50,948	12,697	26.2	6,522	53.1	5,766	2,457	5,452	2,124	44.7	2,624	37,033	12,434	35.2	22,848	16,820	33.0
6-7 persons	8,613	1,586	19.6	769	49.7	778	540	1,044	419	46.0	492	5,548	1,321	25.2	3,933	2,040	23.7
8 persons or more	1,803	324	19.1	106	36.1	188	107	199	73	41.8	102	1,005	152	15.7	820	255	14.2
Occupation:																	
Managerial and professional	31,800	10,092	33.2	7,050	71.3	2,845	1,384	2,355	793	37.8	1,305	31,230	16,696	56.2	13,031	18,579	58.4
Technical, sales, and administrative support	36,695	7,580	21.8	4,470	60.4	2,933	1,886	3,658	1,312	40.0	1,965	35,183	18,461	55.1	15,019	20,228	55.1
Service	15,306	1,871	12.8	782	43.8	1,005	720	1,573	637	44.5	796	14,356	1,368	10.2	12,045	2,379	15.6
Precision production, craft, and repair	14,513	1,965	14.1	954	50.9	921	613	432	123	31.9	262	13,895	2,016	15.3	11,137	2,586	17.8
Operators, laborers, and fabricators	19,021	1,864	10.3	782	44.5	977	896	906	260	33.1	526	17,654	1,563	9.5	14,977	2,292	12.1
Farming, forestry, and fishing	3,570	343	9.9	133	40.1	199	117	126	53	50.3	52	3,350	140	4.4	3,037	252	7.1
Never worked / not in labor force / Armed Forces	59,218	5,900	10.5	2,587	46.0	3,040	3,238	5,350	2,386	51.1	2,282	-	-	0.0	-	4,353	7.4
Industry:																	
Agriculture	3,401	374	11.3	151	42.1	208	98	121	46	44.7	57	3,234	257	8.4	2,821	347	10.2
Mining	692	113	16.5	62	58.0	45	8	22	6	27.1	16	661	197	31.1	437	216	31.2
Construction	8,394	1,044	12.9	502	49.6	510	324	231	63	29.9	148	7,881	927	12.5	6,512	1,217	14.5
Manufacturing	22,574	4,112	19.0	2,527	63.4	1,459	927	965	290	34.4	554	21,432	7,368	36.2	12,988	8,089	35.8
Transportation, communication, and other public utilities	8,304	1,647	20.9	956	60.3	631	422	447	151	38.7	240	8,033	3,010	40.0	4,507	3,405	41.0
Wholesale and retail trade	24,061	4,001	17.5	2,185	56.5	1,679	1,167	2,609	972	41.5	1,369	22,793	6,008	27.9	15,548	7,699	32.0
Finance, insurance and real estate	8,112	1,954	25.5	1,257	65.6	660	433	605	165	30.2	380	7,882	5,295	70.5	2,211	5,534	68.2
Services	39,500	9,181	24.5	5,716	63.8	3,241	1,952	3,771	1,413	41.9	1,962	38,053	13,860	38.5	22,122	16,291	41.2
Forestry and fisheries	180	38	22.0	24	63.6	14	8	1	-	0.0	1	161	57	37.9	93	64	35.6
Public administration	5,688	1,252	23.2	791	64.7	432	278	275	72	28.5	180	5,538	3,266	61.9	2,006	3,454	60.7
Never worked / not in labor force / Armed Forces	59,218	5,900	10.5	2,587	46.0	3,040	3,238	5,350	2,386	51.1	2,282	-	-	0.0	-	4,353	7.4

[1]Nonrespondents not included in base.

Table 5. **Purposes and Frequency of Computer Use at Home by Persons 18 Years and Over: October 1989**

(Numbers in thousands)

Characteristic	All persons	Uses computer at home	Percent	Use of home computer[1]																
				Word processing	Household records	School		Work	Home business	Bulletin-board	Desktop publishing	Learning to use	Spreadsheet	Programming	Graphics	Video games	Telemarketing	Database	Electronic mail	Other/ don't know
						Enrolled	Not enrolled													
Total 18 years old and over	180,123	16,758	9.3	61.6	36.2	12.5	7.7	12.5	11.4	5.7	8.6	19.5	20.5	19.1	18.8	44.1	1.5	17.1	5.3	13.0
18 - 21 years	14,189	1,683	11.9	53.9	8.3	48.5	2.7	2.1	1.6	4.3	2.1	14.5	7.7	14.5	13.3	55.9	0.6	5.8	1.6	8.0
22 - 24 years	11,072	899	8.1	62.8	27.6	28.8	6.3	6.3	6.5	5.9	8.5	17.7	18.9	18.0	21.1	56.0	0.7	16.0	3.9	9.3
25 - 34 years	42,849	4,294	10.0	60.9	39.6	12.9	6.4	14.5	12.2	6.6	9.4	21.0	23.6	22.9	20.9	47.7	2.1	18.3	6.2	13.6
35 - 44 years	36,384	5,517	15.2	63.7	38.5	6.1	10.3	14.5	12.3	6.0	9.5	20.6	21.2	19.0	19.9	45.5	1.4	18.2	5.8	13.4
45 - 54 years	24,925	2,872	11.5	63.6	41.1	4.2	10.0	15.5	14.2	5.7	10.1	19.1	22.6	17.7	17.7	34.1	1.8	19.8	5.6	13.4
55 - 64 years	21,399	1,054	4.9	60.1	43.3	0.9	4.0	12.2	13.7	4.4	8.7	17.5	23.1	17.7	15.9	26.3	1.4	21.5	5.4	16.1
65 years old and over	29,306	440	1.5	58.2	50.0	0.7	4.1	4.5	15.2	2.0	5.7	22.3	14.5	14.3	13.2	27.3	0.0	10.9	4.1	19.1
Race:																				
White	154,236	15,462	10.0	62.4	36.1	12.4	7.5	12.9	11.5	5.9	8.8	19.2	21.1	19.0	19.0	43.8	1.5	17.3	5.4	12.9
Black	20,007	733	3.7	42.7	40.7	12.3	11.3	5.5	12.0	3.5	6.1	22.4	12.1	22.4	15.1	46.7	1.2	12.3	3.1	18.4
Other	5,881	563	9.6	62.7	32.3	17.2	7.5	11.2	8.2	2.0	6.4	23.3	17.1	17.8	16.2	47.6	1.4	18.7	5.2	10.8
Hispanic origin:																				
Hispanic	13,301	508	3.8	58.7	39.6	13.6	7.9	8.1	8.5	2.6	9.4	22.6	18.7	19.5	13.2	43.7	0.8	15.4	4.5	13.2
Non-Hispanic	166,823	16,249	9.7	61.7	36.1	12.5	7.7	12.7	11.5	5.8	8.6	19.4	20.6	19.1	18.9	44.1	1.5	17.2	5.3	13.0
Sex:																				
Male	85,543	9,564	11.2	59.2	39.5	11.6	6.8	16.1	12.7	7.1	8.8	19.7	25.1	24.6	22.4	49.6	1.8	20.6	6.6	14.0
Female	94,581	7,194	7.6	64.7	31.9	13.9	8.9	7.9	9.7	3.9	8.5	19.3	14.5	11.7	13.9	36.7	1.1	12.5	3.5	11.7
Marital status:																				
Married	108,442	11,576	10.7	62.0	41.3	6.1	8.5	13.4	13.1	5.6	9.4	20.0	21.6	18.9	19.0	43.0	1.6	17.6	5.5	13.0
Single	38,979	3,772	9.7	60.3	19.2	32.4	4.9	8.9	5.9	6.0	6.2	17.0	15.9	18.6	18.5	49.0	1.0	13.9	3.9	12.4
Divorced, widowed, or separated	32,703	1,410	4.3	61.6	39.8	12.0	8.9	15.1	11.9	5.8	9.4	22.5	24.1	21.6	17.0	39.1	1.9	21.9	6.7	14.6
Uses computer at work	40,245	9,324	23.2	66.2	40.8	7.9	8.6	19.6	14.5	6.6	10.8	18.2	27.1	23.3	22.4	43.0	2.1	22.9	7.3	13.7
Household type:																				
Married couple	121,237	13,288	11.0	60.5	36.4	10.8	7.8	11.9	11.6	5.3	8.5	19.2	19.6	18.1	18.0	44.5	1.5	15.9	5.0	12.7
Female householder, no spouse Present	37,283	1,614	4.3	62.8	32.0	22.7	8.9	11.2	10.3	4.8	8.9	21.8	19.3	16.9	17.9	40.0	1.1	18.1	4.2	14.1
Male householder, no spouse present	21,603	1,856	8.6	68.2	38.3	16.2	6.1	18.3	10.6	9.2	9.5	19.5	28.8	28.3	24.6	44.7	2.0	25.4	8.2	14.4
Region:																				
Northeast	38,138	3,546	9.3	60.4	33.8	10.9	8.1	11.8	10.4	4.4	7.8	20.0	18.5	18.8	17.6	44.6	1.3	15.7	5.5	14.5
Midwest	43,785	3,928	9.0	60.5	35.1	14.0	7.6	11.2	12.1	5.8	8.6	20.3	20.6	18.6	20.1	48.1	1.5	16.9	4.4	10.7
South	61,691	4,995	8.1	56.6	37.6	12.2	7.7	12.9	10.6	6.6	7.4	18.5	20.5	19.8	18.3	42.1	1.5	15.8	4.4	15.2
West	36,510	4,289	11.7	69.3	37.6	13.0	7.5	14.0	12.5	5.7	10.8	19.6	22.1	18.9	19.0	42.0	1.7	20.0	6.9	11.4
Educational attainment:																				
Elementary: 0 - 8 years	18,249	51	0.3	33.3	23.5	3.9	9.8	3.9	3.9	3.9	3.9	13.7	5.9	3.9	17.6	62.7	0.0	5.9	3.9	7.8
High school: 1 - 3 years	21,141	409	1.9	35.5	25.7	15.4	2.9	5.4	6.4	2.0	4.4	29.3	8.1	13.0	11.2	61.1	2.4	7.3	3.7	15.4
High school: 4 years	70,205	3,804	5.4	46.0	33.6	9.3	4.5	6.9	11.0	4.5	6.3	22.6	12.1	15.7	13.7	54.2	0.9	10.3	3.2	12.0
College: 1 - 3 years	35,617	4,664	13.1	60.4	35.0	22.8	5.8	9.3	10.7	6.4	8.0	20.1	18.9	19.4	18.3	45.6	2.2	16.2	5.4	12.2
College: 4 years or more	34,913	7,830	22.4	71.4	38.8	7.9	10.7	17.7	12.3	6.1	10.4	17.2	26.3	21.0	21.9	37.2	1.3	21.6	6.3	13.9
Employment status:																				
Employed	115,669	13,818	11.9	61.7	37.5	9.8	8.4	14.7	12.5	6.0	8.9	19.2	22.2	20.2	19.6	44.4	1.7	18.5	5.8	13.0
Full-time	97,811	11,606	11.9	61.1	40.2	5.8	9.1	16.2	13.0	6.3	9.5	19.6	23.9	21.8	20.7	45.0	1.9	20.0	6.4	13.7
Part-time	17,858	2,211	12.4	64.6	22.9	30.9	5.0	6.7	9.9	4.2	6.0	16.9	13.1	12.0	13.6	41.7	0.6	10.4	2.5	9.7
Unemployed	5,734	400	7.0	63.5	33.0	13.3	9.3	4.5	10.5	2.3	12.0	23.3	19.5	20.8	20.0	52.8	0.8	13.8	0.5	14.0
Not in labor force	58,721	2,540	4.3	60.8	29.8	27.2	3.6	2.2	5.4	4.8	6.5	20.7	11.8	12.6	14.2	40.5	0.5	10.3	3.5	12.8

Table 5. **Purposes and Frequency of Computer Use at Home by Persons 18 Years and Over: October 1989**—Continued

(Numbers in thousands)

Characteristic	All persons	Uses computer at home	Percent	Use of home computer[1]																
				Word processing	Household records	School		Work	Home business	Bulletin-board	Desktop publishing	Learning to use	Spreadsheet	Programming	Graphics	Video games	Telemarketing	Database	Electronic mail	Other/ don't know
						Enrolled	Not enrolled													
Family income:																				
Less than $10,000	28,163	889	3.2	69.3	33.7	31.3	8.8	12.6	10.7	4.6	9.6	28.0	25.3	21.5	25.1	41.4	0.9	21.8	3.5	10.7
$10,000 - 14,999	19,572	485	2.5	57.7	33.8	21.0	7.4	6.8	11.3	6.0	2.7	29.7	18.4	21.9	19.2	51.1	1.9	14.4	3.9	8.5
$15,000 - 19,999	29,171	1,472	5.0	52.1	32.8	14.9	6.2	9.0	11.5	6.2	8.8	22.6	17.0	17.3	16.0	51.4	0.6	14.7	3.6	16.4
$20,000 - 24,999	14,781	1,147	7.8	56.5	37.5	12.0	4.7	7.8	9.0	5.8	7.6	20.4	16.9	20.6	17.3	50.3	1.5	14.9	3.3	12.5
$25,000 - 34,999	26,316	2,472	9.4	56.1	36.0	12.2	8.3	10.3	11.8	5.9	8.3	21.8	18.2	20.0	17.2	48.0	1.7	16.2	5.2	14.5
$35,000 - 49,999	27,196	4,359	16.0	62.2	37.2	11.2	9.2	13.3	11.8	6.3	9.7	20.7	20.8	20.9	19.7	45.9	1.5	18.3	5.6	11.4
$50,000 - 74,999	8,963	1,845	20.6	66.4	36.2	9.6	7.9	14.2	8.8	5.7	7.3	15.6	20.1	17.6	19.2	42.1	1.1	16.0	4.7	12.6
$75,000 or more	11,608	3,106	26.8	68.2	37.6	9.4	6.5	17.3	12.5	4.8	9.0	13.1	25.1	16.6	19.3	36.4	2.1	18.6	7.5	13.1
Income not reported	14,352	981	6.8	57.9	34.9	10.9	8.5	10.5	13.0	5.4	9.2	17.6	18.5	16.3	15.7	34.5	1.8	15.0	5.2	16.9
Household size:																				
1-3 persons	118,759	9,361	7.9	64.6	39.6	12.8	6.3	14.4	12.0	5.9	9.2	20.1	23.9	20.5	19.9	39.7	1.6	19.6	6.2	13.4
4-5 persons	50,948	6,522	12.8	58.4	32.9	12.1	9.5	10.4	10.9	5.5	8.0	19.2	17.0	17.6	17.6	49.2	1.4	14.7	4.4	12.8
6-7 persons	8,613	769	8.9	53.1	23.8	13.9	10.0	8.5	8.7	5.2	6.0	17.0	11.4	15.3	14.8	53.2	0.5	9.9	1.8	9.1
8 persons or more	1,803	106	5.9	50.9	26.4	8.5	4.7	12.3	11.3	1.9	15.1	7.5	5.7	11.3	15.1	41.5	0.0	5.7	0.9	18.9
Occupation:																				
Managerial & professional	31,800	7,050	22.2	69.2	39.1	7.1	11.5	18.2	12.3	6.3	10.6	17.9	26.8	22.0	22.3	38.8	1.5	22.2	6.5	13.6
Technical, sales, and administrative support	36,695	4,470	12.2	59.8	37.6	11.9	6.0	13.6	13.8	5.5	8.4	18.8	19.5	19.1	17.9	45.4	2.2	16.9	5.5	13.0
Service	15,306	782	5.1	56.0	29.3	22.6	5.2	5.1	10.4	6.3	7.3	21.5	15.2	19.3	14.6	56.1	2.2	12.0	2.6	14.3
Precision production, craft, and repair	14,513	954	6.6	41.0	40.0	7.9	4.4	8.1	12.1	6.3	6.9	25.9	17.4	21.9	16.4	61.0	1.0	12.2	4.6	11.8
Operators, laborers, and fabricators	19,021	782	4.1	40.2	27.5	12.8	3.1	4.2	7.3	4.9	3.3	22.3	9.7	13.2	15.7	61.9	1.0	7.7	2.9	9.7
Farming, forestry and fishing	3,570	133	3.7	45.1	26.3	13.5	4.5	6.0	25.6	0.8	6.8	24.8	9.8	6.8	8.3	35.3	0.0	10.5	2.3	9.0
Never worked / not in labor force / Armed Forces	59,218	2,587	4.4	60.4	29.8	27.0	3.8	2.2	5.3	4.7	6.4	21.0	11.8	12.6	14.2	41.2	0.5	10.4	3.4	12.6
Industry:																				
Agriculture	3,401	151	4.4	54.3	27.8	6.6	2.6	16.6	31.8	1.3	6.6	17.9	11.9	7.3	11.9	34.4	0.0	9.9	2.0	11.9
Mining	692	62	9.0	37.1	41.9	4.8	3.2	16.1	12.9	6.5	11.3	12.9	17.7	14.5	19.4	51.6	0.0	16.1	9.7	17.7
Construction	8,394	502	6.0	45.4	38.2	4.2	3.6	9.4	21.7	2.8	4.2	21.1	12.7	17.1	15.3	43.2	0.2	10.8	2.4	9.6
Manufacturing	22,574	2,527	11.2	57.2	42.1	8.0	6.1	18.4	9.5	7.0	9.3	18.9	27.5	26.4	24.1	52.6	1.6	21.1	7.0	13.0
Transportation, communication and other public utilities	8,304	956	11.5	53.6	39.6	7.4	3.5	14.0	11.1	4.8	8.8	20.4	23.5	22.0	18.9	52.1	3.0	17.7	7.4	11.0
Wholesale and retail trade	24,061	2,185	9.1	52.7	34.6	15.1	5.0	12.9	11.6	5.0	6.4	20.4	19.0	18.0	17.6	51.0	2.4	14.5	5.2	11.2
Finance, insurance and real estate	8,112	1,257	15.5	64.2	39.2	6.8	5.3	18.2	15.5	4.6	9.8	19.6	26.7	17.7	17.9	39.1	1.9	20.9	7.1	13.2
Services	39,500	5,716	14.5	69.2	34.0	11.0	12.8	13.5	12.9	6.5	10.1	18.1	20.5	19.0	19.7	38.5	1.3	18.5	5.0	14.4
Forestry and fisheries	180	24	13.3	75.0	16.7	0.0	8.3	0.0	0.0	0.0	4.2	50.0	4.2	20.8	4.2	50.0	0.0	8.3	0.0	0.0
Public administration	5,688	791	13.9	67.4	50.2	6.8	9.0	10.4	9.6	6.8	10.1	22.6	25.5	23.1	18.5	46.6	2.1	22.6	5.2	13.5
Never worked / not in labor Force / Armed Forces	59,218	2,587	4.4	60.4	29.8	27.0	3.8	2.2	5.3	4.7	6.4	21.0	11.8	12.6	14.2	41.2	0.5	10.4	3.4	12.6

[1]Multiple uses allowed by respondents.

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**

(Numbers in thousands)

Line no.	Sex and occupation	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spreadsheet	Desktop publishing	Graphics	Bookkeeping
	BOTH SEXES								
1	All occupations	115,669	40,245	34.8	14.3	8.0	3.1	5.1	9.2
2	Executive, administrative, and managerial	15,137	8,730	57.7	28.8	23.2	6.9	10.2	22.7
3	Officials and administrators	617	399	64.7	37.6	19.0	5.2	10.0	13.0
4	Other executive, admin., and managerial	10,509	5,367	51.1	25.5	20.1	7.1	10.1	19.5
5	Management related	4,011	2,964	73.9	36.3	32.0	6.5	10.6	32.5
6	Professional specialty	16,095	7,966	49.5	25.5	11.1	6.8	12.5	7.4
7	Engineers	1,882	1,416	75.2	38.8	28.5	7.5	31.3	8.7
8	Mathematical and computer scientists	956	893	93.4	56.6	40.2	18.0	31.2	14.7
9	Natural scientists	379	268	70.7	46.4	25.1	10.3	32.7	10.8
10	Health diagnosing occupations	885	265	29.9	13.8	5.9	2.8	4.6	10.6
11	Health asssessment and treating	2,273	1,055	46.4	8.9	3.1	1.2	2.1	6.0
12	Teachers, college and university	789	486	61.6	47.9	18.0	11.2	20.7	8.6
13	Teachers, except college and university	4,192	1,540	36.7	16.6	4.6	5.5	7.7	4.8
14	Lawyers and judges	853	379	44.4	33.6	6.1	3.2	2.9	10.2
15	Other professional specialty	3,886	1,664	42.8	25.1	6.6	8.9	10.4	6.7
16	Technicians and related support	3,569	2,220	62.2	22.6	12.2	4.8	14.3	7.9
17	Health technologists and technicians	1,281	594	46.4	11.5	3.8	2.3	3.8	5.4
18	Engineering and science technicians	1,153	694	60.2	20.6	13.9	4.4	21.4	7.1
19	Technicians, exc. health, engineering, and science	1,135	932	82.1	37.2	19.8	7.9	19.0	11.6
20	Sales occupations	13,372	4,665	34.9	10.0	7.0	2.7	3.3	9.7
21	Supervisors and proprietors	3,918	1,477	37.7	10.0	8.9	2.6	3.1	14.9
22	Sales reps., finance and business services	2,289	1,364	59.6	24.4	14.0	6.7	8.1	12.8
23	Sales reps., commodities, except retail	1,656	662	40.0	14.2	10.9	3.8	5.7	10.0
24	Sales workers, retail and personal services	5,443	1,159	21.3	2.8	1.5	0.7	0.7	4.6
25	Sales related occupations	66	3	(B)	(B)	(B)	(B)	(B)	(B)
26	Administrative support, including clerical	18,242	11,576	63.5	27.8	11.1	4.4	4.7	20.3
27	Supervisors	742	537	72.4	24.7	18.1	4.7	8.0	24.4
28	Computer equipment operators	798	737	92.4	31.5	20.8	8.5	13.9	25.6
29	Secretaries, stenographers and typists	4,868	3,487	71.6	53.6	14.9	8.5	7.5	18.5
30	Financial records processing	2,386	1,516	63.5	19.7	16.7	2.5	3.5	47.0
31	Mail and message distributing	935	165	17.6	1.0	0.9	0.1	0.5	2.4
32	Other admin. support, including clerical	8,513	5,134	60.3	18.2	6.9	2.6	2.8	15.0
33	Service occupations	14,356	1,372	9.6	2.1	0.7	0.3	0.4	1.7
34	Private household	695	4	0.6	–	–	–	–	–
35	Protective service	1,871	595	31.8	8.5	2.9	0.7	1.7	2.7
36	Food service	4,591	279	6.1	0.7	0.3	0.1	0.2	1.2
37	Health service	1,969	271	13.8	3.2	0.7	0.3	0.1	4.3
38	Cleaning and building service	2,901	74	2.6	0.6	0.4	0.2	0.2	0.5
39	Personal service	2,329	149	6.4	1.4	0.5	0.6	0.6	1.6
40	Precision production, craft, and repair	13,895	2,018	14.5	2.7	2.2	0.6	2.0	2.2
41	Mechanics and repairers	4,459	854	19.2	3.6	2.4	0.8	2.1	2.8
42	Construction trades	5,401	262	4.9	1.3	1.1	0.1	0.9	1.5
43	Other precision prod., craft and repair	4,035	902	22.4	3.8	3.3	0.9	3.3	2.4
44	Machine operators, assemblers and inspectors	8,044	885	11.0	1.4	0.7	0.4	1.3	0.7
45	Machine operators and tenders, exc. precision	5,239	528	10.1	1.5	0.5	0.5	1.5	0.7
46	Fabricators, assemblers, inspectors and samplers	2,805	357	12.7	1.4	1.1	0.2	0.7	0.9
47	Transportation and material moving	5,069	310	6.1	0.3	0.7	0.1	0.2	1.1
48	Motor vehicle operators	3,745	200	5.3	0.2	0.6	–	0.2	1.1
49	Other transportation and material moving occs	1,324	110	8.3	0.4	0.8	0.2	0.4	1.1
50	Handlers, equipment cleaners, helpers, and laborers	4,540	369	8.1	0.6	0.6	0.1	0.4	0.7
51	Construction laborers	708	11	1.6	0.7	0.3	–	–	0.7
52	Freight, stock and material handlers	1,451	132	9.1	0.7	0.4	0.1	0.3	0.4
53	Other handlers, equipment cleaners, and laborers	2,381	226	9.5	0.4	0.7	0.1	0.6	0.9
54	Farming, forestry and fishing	3,350	140	4.2	1.4	1.2	0.3	0.5	2.5
55	Farm operators and managers	1,339	77	5.8	2.0	1.6	0.4	0.5	4.0
56	Farm workers and related occupations	1,846	50	2.7	1.0	0.7	0.2	0.4	1.5
57	Forestry and fishing	165	13	7.9	0.6	3.0	0.6	1.2	2.4

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**

(Numbers in thousands)

Calendar	Uses computer at work[1]													
	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no.
6.7	5.3	9.0	3.2	6.7	9.5	9.0	5.2	5.5	6.1	8.9	1.8	6.4	2.1	1
14.0	10.9	17.9	5.0	12.8	19.9	21.8	8.4	11.2	13.2	17.0	3.3	8.5	3.6	2
13.3	13.1	19.6	5.3	11.2	27.7	20.1	8.6	0.6	4.1	11.7	2.1	12.5	6.3	3
14.6	9.9	17.5	5.2	12.4	17.7	18.8	7.8	12.8	13.4	17.7	3.2	7.2	3.1	4
12.7	12.9	18.6	4.4	14.0	24.6	29.8	9.9	8.6	13.9	15.9	3.6	11.3	4.3	5
10.8	8.7	14.6	8.2	13.3	16.5	15.7	13.7	2.5	4.4	6.8	5.2	9.2	2.4	6
19.0	19.6	22.4	29.7	30.7	30.2	36.5	13.1	4.2	5.8	14.7	6.4	10.3	5.5	7
33.7	41.8	49.2	23.6	61.8	54.7	61.2	27.9	11.4	13.9	16.6	11.1	12.0	3.2	8
12.9	14.5	21.9	14.8	19.0	35.9	43.5	13.7	2.1	1.8	9.2	5.3	10.3	4.7	9
6.2	3.6	7.3	1.2	4.9	12.7	13.2	4.7	2.7	6.1	4.3	2.0	6.4	2.0	10
7.3	3.3	12.4	1.4	3.8	12.3	11.1	8.4	2.9	5.9	9.5	0.7	17.2	2.1	11
11.0	13.8	15.8	7.0	21.4	22.6	25.0	26.6	0.5	2.0	3.8	4.6	8.2	0.9	12
5.2	1.3	6.8	3.0	6.7	6.4	3.7	23.0	0.6	1.2	3.1	9.6	5.7	1.3	13
12.3	8.1	13.4	1.2	7.4	13.1	8.6	2.5	0.4	6.9	2.6	3.0	7.6	2.8	14
9.7	6.2	13.0	6.2	6.5	12.2	7.5	5.7	2.4	3.8	4.9	2.4	8.1	2.1	15
11.0	10.0	16.2	11.5	20.9	20.8	22.3	9.8	2.3	6.1	10.7	3.4	15.2	4.1	16
7.2	2.3	9.8	2.8	5.2	12.3	14.8	6.2	0.8	5.3	6.4	0.3	17.8	2.4	17
8.5	7.6	11.0	19.4	14.5	18.3	19.9	7.6	2.5	5.2	13.5	3.6	12.3	4.8	18
17.7	21.1	28.6	13.4	45.1	33.0	33.2	16.1	3.9	8.0	12.8	6.8	15.3	5.4	19
5.7	4.9	8.9	2.0	4.7	7.4	8.7	3.4	17.7	9.2	15.0	1.6	4.8	1.8	20
6.5	5.9	10.8	2.2	5.9	7.2	9.8	4.2	16.8	13.0	22.4	1.5	4.8	2.0	21
12.8	9.9	20.4	4.4	9.0	18.3	21.9	6.8	31.2	9.6	11.4	3.2	11.5	2.1	22
7.5	5.9	10.5	3.1	5.3	9.6	9.9	4.2	24.4	13.7	19.5	2.2	3.0	2.2	23
1.6	1.9	2.2	0.7	1.8	2.5	2.0	1.2	11.0	5.0	10.0	0.8	2.7	1.3	24
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	25
10.4	9.0	14.9	2.9	8.4	15.4	9.4	6.4	7.1	12.4	13.8	1.6	12.1	3.8	26
18.2	15.0	19.3	6.3	12.8	20.9	19.1	10.6	8.5	12.9	20.6	2.2	11.7	6.9	27
20.2	14.9	26.8	9.8	31.3	34.0	20.7	14.5	12.3	22.8	27.6	3.5	18.5	8.4	28
14.2	11.4	18.9	3.3	9.1	15.6	8.0	6.4	5.3	11.1	10.6	2.0	9.7	3.6	29
6.5	5.4	10.2	2.5	7.6	13.5	11.3	5.2	10.7	21.1	14.5	2.2	9.0	2.6	30
1.6	4.6	3.6	1.2	1.9	1.0	2.0	1.3	4.0	2.1	5.3	-	2.6	1.9	31
8.7	8.1	13.7	2.1	6.4	15.2	8.5	6.3	6.8	10.9	14.5	1.1	14.8	3.7	32
1.9	0.6	2.6	0.3	0.9	1.8	1.2	0.9	1.1	0.9	1.9	0.3	2.8	0.6	33
0.1	-	-	-	-	-	-	-	-	-	0.1	0.6	-	-	34
5.0	2.2	13.2	1.2	3.5	9.0	5.8	3.3	-	1.4	4.2	0.3	9.7	2.6	35
1.0	0.3	0.7	0.2	0.5	0.1	0.3	0.3	2.4	0.9	1.8	0.1	1.7	0.3	36
3.4	0.8	2.1	0.2	0.9	2.6	1.1	1.0	0.8	1.8	3.1	0.2	4.4	1.2	37
0.6	0.1	0.7	0.2	0.4	0.6	0.3	0.3	0.3	0.3	0.8	0.3	0.8	0.1	38
2.2	0.4	1.3	0.3	0.3	0.8	0.8	1.0	0.9	0.7	1.2	0.7	1.3	0.1	39
2.4	1.6	2.7	1.7	3.0	2.6	3.7	2.2	1.3	2.1	5.5	0.5	3.2	1.2	40
3.2	2.7	4.6	1.6	3.6	4.4	5.4	3.2	1.7	2.7	7.0	0.7	4.1	1.6	41
1.0	0.4	0.8	0.7	1.1	0.7	1.0	0.4	0.7	1.0	1.8	0.1	1.0	0.3	42
3.6	2.1	3.2	3.1	4.8	3.3	5.3	3.4	1.7	2.9	8.7	0.6	5.3	1.9	43
0.9	0.6	1.0	1.0	1.7	1.5	1.5	1.1	0.3	1.2	3.4	0.1	2.8	0.9	44
0.7	0.6	1.0	1.2	1.9	1.2	1.4	1.0	0.3	0.9	2.7	0.2	2.6	0.8	45
1.4	0.6	1.1	0.7	1.3	2.0	1.7	1.1	0.3	1.6	4.7	0.1	3.1	0.9	46
1.2	0.4	0.9	-	0.4	0.5	0.3	0.5	1.0	1.2	2.6	0.1	1.4	0.2	47
1.0	0.2	0.7	-	0.3	0.3	0.2	0.3	1.2	1.2	2.2	0.1	1.3	0.2	48
1.9	0.7	1.7	-	0.7	1.1	0.8	0.9	0.3	1.1	3.9	0.2	1.7	0.1	49
0.7	0.4	0.7	0.3	0.8	0.6	0.6	0.5	1.0	1.9	4.3	0.1	1.3	0.9	50
0.7	0.3	0.6	0.3	-	-	0.3	-	-	0.4	0.3	0.4	-	0.3	51
0.6	0.5	0.6	0.4	0.7	0.9	0.6	0.8	1.9	2.4	5.1	-	1.4	0.5	52
0.9	0.4	0.8	0.3	1.0	0.7	0.8	0.5	0.8	1.9	4.9	-	1.7	1.3	53
0.2	0.4	0.6	0.1	0.7	0.8	0.8	0.2	0.7	1.0	1.4	0.5	0.9	0.1	54
0.1	0.1	0.6	0.2	0.9	1.0	1.1	0.1	0.8	0.9	1.7	0.8	1.4	0.1	55
0.3	0.3	0.4	-	0.5	0.5	0.7	0.3	0.7	1.0	1.1	0.4	0.4	0.2	56
0.6	3.6	3.6	1.2	1.2	2.4	0.6	0.6	-	0.6	2.4	-	1.2	-	57

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**—Continued

(Numbers in thousands)

Line no.	Sex and occupation	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spread sheet	Desktop publishing	Graphics	Bookkeeping
	MALE								
58	All occupations	63,416	18,960	29.9	11.2	8.2	2.8	5.9	7.2
59	Executive, administrative and managerial	9,172	4,924	53.7	24.4	23.6	6.2	11.3	19.5
60	Officials and administrators	369	211	57.2	33.9	18.2	6.5	12.2	10.0
61	Other executive, admin. and managerial	6,801	3,349	49.2	22.0	20.8	6.2	11.1	16.9
62	Management related	2,002	1,364	68.1	31.0	34.0	5.8	11.9	30.0
63	Professional specialty	7,890	4,401	55.8	30.7	16.2	8.3	17.6	9.7
64	Engineers	1,724	1,287	74.7	37.1	27.7	7.4	30.2	8.5
65	Mathematical and computer scientists	593	556	93.8	57.2	42.8	19.1	34.9	15.7
66	Natural scientists	268	187	69.8	45.5	25.0	9.7	31.7	11.2
67	Health diagnosing occupations	720	216	30.0	14.4	6.4	3.2	5.3	11.0
68	Health asssessment and treating	346	201	58.1	12.7	6.6	2.6	4.6	12.7
69	Teachers, college and university	496	319	64.3	49.8	20.8	13.1	25.6	9.5
70	Teachers, except college and university	1,104	475	43.0	20.2	8.9	7.1	11.2	8.8
71	Lawyers and judges	647	275	42.5	31.4	7.1	3.7	3.6	10.7
72	Other professional specialty	1,992	885	44.4	25.3	8.1	9.6	12.6	8.2
73	Technicians and related support	1,868	1,263	67.6	25.1	15.3	6.5	20.0	8.7
74	Health technologists and technicians	208	116	55.8	19.2	3.4	4.3	7.2	3.4
75	Engineering and science technicians	924	551	59.6	20.0	13.3	4.4	21.1	6.9
76	Technicians, exc. health, engineering and science	736	596	81.0	33.0	21.1	9.6	22.3	12.4
77	Sales occupations	6,947	2,770	39.9	12.3	9.7	3.3	4.7	12.6
78	Supervisors and proprietors	2,566	1,042	40.6	10.4	10.9	3.3	4.0	17.3
79	Sales reps., finance and business services	1,315	734	55.8	24.9	15.7	5.9	9.7	13.8
80	Sales reps., commodities, except retail	1,294	494	38.2	13.2	10.7	3.7	5.4	10.8
81	Sales workers, retail, and personal services	1,755	498	28.4	5.1	2.9	1.2	1.6	6.2
82	Sales related occupations	17	2	(B)	(B)	(B)	(B)	(B)	(B)
83	Administrative support, including clerical	3,585	1,782	49.7	13.1	8.8	2.6	5.2	12.2
84	Supervisors	312	206	66.0	25.3	18.6	5.4	12.2	19.9
85	Computer equipment operators	300	278	92.7	29.3	21.7	10.7	19.7	22.7
86	Secretaries, stenographers and typists	99	67	67.7	51.5	5.1	8.1	12.1	14.1
87	Financial records processing	191	114	59.7	13.6	15.2	1.6	3.7	29.8
88	Mail and message distributing	608	98	16.1	0.7	1.2	–	0.2	1.6
89	Other admin. support, including clerical	2,075	1,019	49.1	10.7	7.3	1.7	3.4	10.9
90	Service occupations	5,485	728	13.3	3.2	1.2	0.4	0.8	1.7
91	Private household	15	-	(B)	(B)	(B)	(B)	(B)	(B)
92	Protective service	1,580	514	32.5	8.4	3.1	0.6	1.7	2.7
93	Food service	1,748	112	6.4	1.0	0.4	0.2	0.3	1.1
94	Health service	184	23	12.5	1.1	–	–	–	1.1
95	Cleaning and building service	1,609	46	2.9	1.0	0.6	0.4	0.4	0.7
96	Personal service	349	33	9.5	1.7	0.6	1.1	0.9	4.3
97	Precision production, craft and repair	12,673	1,828	14.4	2.5	2.1	0.5	2.0	2.1
98	Mechanics and repairers	4,281	784	18.3	3.3	2.3	0.7	2.1	2.8
99	Construction trades	5,290	255	4.8	1.2	1.0	0.2	0.9	1.4
100	Other precision prod., craft and repair	3,102	789	25.4	3.8	3.6	0.7	3.9	2.4
101	Machine operators, assemblers and inspectors	4,798	597	12.4	1.6	1.0	0.5	1.3	0.8
102	Machine operators and tenders, exc. precision	3,064	387	12.6	1.9	0.8	0.7	1.5	0.8
103	Fabricators, assemblers, inspectors and sampler	1,734	210	12.1	1.0	1.3	0.2	1.0	0.7
104	Transportation and material moving	4,589	277	6.0	0.3	0.7	0.1	0.2	1.1
105	Motor vehicle operators	3,315	173	5.2	0.3	0.7	–	0.2	1.1
106	Other transportation and material moving occs	1,274	104	8.2	0.3	0.5	0.2	0.2	0.9
107	Handlers, equipment cleaners, helpers and laborers	3,623	275	7.6	0.5	0.5	0.1	0.3	0.7
108	Construction laborers	681	9	1.3	0.7	0.3	–	–	0.7
109	Freight, stock and material handlers	1,194	103	8.6	0.7	0.3	0.2	0.3	0.5
110	Other handlers, equipment cleaners, and laborers	1,748	163	9.3	0.3	0.7	0.1	0.5	0.9
111	Farming, forestry and fishing	2,786	114	4.1	1.1	1.2	0.3	0.4	2.7
112	Farm operators and managers	1,121	67	6.0	1.9	1.9	0.3	0.4	4.5
113	Farm workers and related occupations	1,507	34	2.3	0.7	0.5	0.3	0.3	1.4
114	Forestry and fishing	158	13	8.2	0.6	3.2	0.6	1.3	2.5

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**—Continued

(Numbers in thousands)

Calendar	Uses computer at work[1]														
	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no.
6.5	5.0	8.4	3.9	7.2	8.9	10.0	4.7	5.5	5.5	9.2	1.9	5.0	2.2	58
14.2	10.1	17.0	5.5	13.4	19.3	23.1	7.8	11.8	12.4	17.7	3.5	7.4	4.3	59
12.7	13.3	18.4	6.0	13.6	23.8	18.7	8.7	0.8	3.0	10.0	1.1	7.6	8.1	60
14.7	9.4	16.8	5.9	12.9	17.5	20.3	7.2	13.2	13.0	18.8	3.3	6.5	3.8	61
12.6	11.8	17.5	4.1	15.2	24.6	33.5	9.7	9.1	12.0	15.1	4.6	10.3	5.3	62
13.9	12.4	18.6	12.7	18.9	21.0	22.0	12.9	3.6	6.0	8.6	5.4	9.1	3.3	63
18.2	18.7	22.0	29.8	30.2	29.0	34.9	12.6	4.4	5.9	14.5	6.3	10.0	5.9	64
37.8	45.0	54.3	26.6	65.1	54.8	63.2	25.3	12.6	17.0	17.9	14.0	12.0	3.9	65
12.3	13.8	22.4	13.4	19.0	32.8	41.8	12.7	2.2	1.9	9.0	4.9	9.3	4.5	66
6.9	3.6	7.8	1.3	5.3	12.5	14.2	5.3	2.6	6.1	4.2	2.5	6.4	1.9	67
9.0	5.8	16.2	4.0	9.2	15.9	18.8	9.2	11.3	13.9	19.9	1.4	19.4	2.6	68
12.5	17.5	17.5	8.7	26.2	25.2	30.4	26.6	0.6	1.8	3.4	5.6	7.9	1.4	69
7.2	3.4	10.9	5.7	10.8	10.9	7.8	25.3	1.4	2.8	6.4	7.9	8.3	2.1	70
13.0	7.3	13.3	1.5	8.7	13.3	10.0	2.6	0.5	7.4	2.0	3.4	7.4	3.4	71
11.0	6.6	15.1	7.8	8.1	13.4	9.1	6.1	2.6	4.5	5.0	2.9	8.0	2.3	72
13.5	12.8	19.6	16.4	27.4	25.2	27.0	12.1	3.2	6.6	13.5	5.3	13.9	5.9	73
8.7	2.4	13.5	2.9	10.6	20.2	21.6	8.7	–	6.3	9.1	1.9	13.5	6.3	74
9.1	7.9	11.4	19.3	15.4	19.6	20.8	7.7	2.9	5.6	13.9	4.0	12.0	5.3	75
20.4	21.9	31.7	16.7	47.3	33.6	36.3	18.6	4.5	7.9	14.3	7.9	16.3	6.5	76
7.2	6.0	11.1	2.9	6.0	9.3	12.0	4.7	21.5	12.5	19.1	2.2	4.1	2.3	77
7.6	6.3	12.0	2.5	6.9	8.5	11.9	4.5	18.9	15.7	26.0	1.9	4.4	2.4	78
12.5	9.8	19.6	4.9	8.9	18.9	24.3	7.8	31.2	10.2	9.8	4.2	8.0	2.0	79
7.7	6.0	10.6	3.5	5.4	10.0	10.1	4.5	24.4	13.4	18.2	1.9	2.2	2.3	80
2.5	3.0	3.9	1.4	2.8	2.9	4.2	3.0	15.0	8.9	16.7	1.5	2.4	2.6	81
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	82
10.5	8.6	12.5	3.5	8.8	14.3	11.2	7.1	6.4	10.7	18.2	1.9	9.1	4.6	83
21.2	15.4	13.1	9.3	15.1	23.7	20.5	14.4	7.4	10.9	28.2	5.1	9.3	5.8	84
26.0	18.3	34.3	14.3	38.3	36.7	24.3	21.3	10.0	20.0	28.3	5.0	17.3	13.7	85
14.1	17.2	17.2	2.0	18.2	15.2	4.0	3.0	–	5.1	5.1	6.1	6.1	2.0	86
9.9	3.7	11.5	4.2	11.0	22.0	16.8	7.9	9.9	14.7	8.4	3.1	11.5	6.3	87
1.0	4.4	3.0	1.6	1.5	0.7	2.0	1.2	2.6	2.8	5.1	–	1.5	1.8	88
9.3	7.5	11.9	1.6	5.1	12.9	10.5	5.7	6.7	11.6	20.7	1.2	10.1	3.9	89
2.7	0.9	4.7	0.5	1.4	2.8	2.3	1.3	1.1	0.9	2.7	0.4	4.0	0.9	90
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	91
5.6	2.3	14.1	1.1	3.2	8.5	6.3	3.0	–	1.1	4.1	0.4	10.0	2.7	92
1.7	0.3	1.1	0.1	0.7	0.1	0.7	0.5	2.6	1.0	2.5	0.3	1.3	0.1	93
1.6	–	2.7	–	1.1	3.3	–	–	1.6	1.1	4.9	–	6.0	1.6	94
0.7	0.2	0.5	0.4	0.6	0.7	0.6	0.6	0.2	0.4	0.9	0.4	0.9	0.1	95
4.3	0.9	1.4	–	1.4	0.6	0.6	1.4	2.3	1.4	4.0	0.3	3.7	–	96
2.5	1.5	2.5	1.7	3.1	2.5	3.7	2.1	1.3	2.0	5.6	0.5	3.1	1.2	97
3.2	2.5	4.1	1.5	3.6	4.1	5.1	2.8	1.7	2.4	6.9	0.8	4.0	1.5	98
1.0	0.4	0.8	0.7	1.1	0.7	1.0	0.4	0.7	1.0	1.7	0.2	1.0	0.3	99
4.0	2.1	3.3	3.6	5.5	3.6	6.3	3.8	2.1	3.2	10.3	0.8	5.7	2.4	100
1.2	0.7	1.3	1.4	2.2	1.6	1.9	1.5	0.1	1.3	3.8	0.2	3.1	1.1	101
0.9	0.8	1.4	1.6	2.7	1.3	1.8	1.5	0.2	1.0	3.5	0.2	3.4	1.3	102
1.8	0.6	1.2	0.9	1.3	2.2	2.1	1.4	–	1.7	4.3	0.1	2.6	0.7	103
1.4	0.4	1.0	–	0.4	0.5	0.3	0.5	1.0	1.3	2.6	0.1	1.2	0.2	104
1.1	0.3	0.8	–	0.3	0.4	0.2	0.4	1.3	1.4	2.2	0.1	1.0	0.3	105
1.9	0.6	1.6	–	0.6	0.9	0.5	0.9	0.2	0.9	3.6	0.1	1.6	0.1	106
0.7	0.5	0.5	0.4	0.7	0.4	0.6	0.4	1.0	1.7	3.8	0.1	1.3	0.9	107
0.4	0.3	0.3	0.3	–	–	–	–	–	0.4	0.3	0.4	–	0.3	108
0.5	0.6	0.5	0.5	0.8	0.7	0.7	0.8	1.9	2.2	4.8	–	1.3	0.4	109
0.9	0.5	0.6	0.4	1.0	0.5	0.9	0.3	0.8	1.9	4.6	–	1.8	1.4	110
0.3	0.3	0.6	0.1	0.6	0.8	0.7	0.2	0.6	1.0	1.5	0.3	0.9	0.1	111
0.1	0.1	0.6	0.2	1.1	1.0	1.2	–	0.9	1.1	2.0	0.8	1.4	0.2	112
0.4	0.1	0.3	–	0.3	0.5	0.3	0.3	0.5	0.9	1.1	–	0.4	–	113
0.6	3.8	3.8	1.3	1.3	2.5	0.6	0.6	–	0.6	2.5	–	1.3	–	114

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**—Continued

(Numbers in thousands)

Line no.	Sex and occupation	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spread sheet	Desktop publishing	Graphics	Bookkeeping
	FEMALE								
115	All occupations	52,253	21,285	40.7	18.1	7.8	3.5	4.1	11.7
116	Executive, administrative, and managerial	5,965	3,806	63.8	35.7	22.6	7.9	8.5	27.7
117	Officials and administrators	248	188	75.8	43.1	20.2	3.2	6.9	17.3
118	Other executive, admin., and managerial	3,708	2,018	54.4	32.0	18.8	8.6	8.3	24.4
119	Management related	2,009	1,600	79.6	41.6	30.0	7.3	9.3	35.1
120	Professional specialty	8,205	3,565	43.4	20.5	6.1	5.4	7.6	5.2
121	Engineers	158	129	81.6	58.2	36.7	8.2	43.7	11.4
122	Mathematical and computer scientists	363	337	92.8	55.6	35.8	16.3	25.1	13.2
123	Natural scientists	111	81	73.0	48.6	25.2	11.7	35.1	9.9
124	Health diagnosing occupations	165	49	29.7	10.9	3.6	1.2	1.8	9.1
125	Health asssessment and treating	1,927	854	44.3	8.3	2.4	0.9	1.6	4.8
126	Teachers, college and university	293	167	57.0	44.7	13.3	7.8	12.3	7.2
127	Teachers, except college and university	3,088	1,065	34.5	15.3	3.1	5.0	6.5	3.3
128	Lawyers and judges	206	104	50.5	40.8	2.9	1.5	1.0	8.7
129	Other professional specialty	1,894	779	41.1	24.8	4.9	8.1	8.2	5.1
130	Technicians and related support	1,701	957	56.3	19.9	8.8	2.9	8.1	7.1
131	Health technolgists and technicians	1,073	478	44.5	10.0	3.9	1.9	3.2	5.8
132	Engineering and science technicians	229	143	62.4	23.1	16.2	4.4	22.7	7.9
133	Technicians, exc. health, engineering and science	399	336	84.2	44.9	17.5	4.8	13.0	10.3
134	Sales occupations	6,425	1,895	29.5	7.5	4.0	2.0	1.7	6.5
135	Supervisors and proprietors	1,352	435	32.2	9.2	5.0	1.3	1.5	10.2
136	Sales reps., finance and business services	974	630	64.7	23.7	11.8	7.8	6.0	11.5
137	Sales reps, commodities, except retail	362	168	46.4	17.7	11.6	4.1	6.6	6.9
138	Sales workers, retail, and personal services	3,688	661	17.9	1.7	0.9	0.5	0.2	3.9
139	Sales related occupations	49	1	(B)	(B)	(B)	(B)	(B)	(B)
140	Administrative support, including clerical	14,657	9,794	66.8	31.4	11.7	4.8	4.6	22.3
141	Supervisors	430	331	77.0	24.2	17.7	4.2	4.9	27.7
142	Computer equipment operators	498	459	92.2	32.7	20.3	7.2	10.4	27.3
143	Secretaries, stenographers and typists	4,769	3,420	71.7	53.7	15.1	8.5	7.4	18.6
144	Financial records processing	2,195	1,402	63.9	20.2	16.9	2.6	3.5	48.5
145	Mail and message distributing	327	67	20.5	1.5	0.3	0.3	1.2	3.7
146	Other admin. support, including clerical	6,438	4,115	63.9	20.7	6.8	2.8	2.6	16.3
147	Service occupations	8,871	644	7.3	1.5	0.4	0.2	0.2	1.7
148	Private household	680	4	0.6	–	–	–	–	–
149	Protective service	291	81	27.8	8.9	2.1	1.0	1.7	2.7
150	Food service	2,843	167	5.9	0.5	0.2	–	0.2	1.2
151	Health service	1,785	248	13.9	3.4	0.8	0.3	0.1	4.6
152	Cleaning and building service	1,292	28	2.2	0.2	0.2	–	–	0.3
153	Personal service	1,980	116	5.9	1.4	0.5	0.5	0.5	1.2
154	Precision production, craft and repair	1,222	190	15.5	4.7	2.8	1.5	1.3	2.7
155	Mechanics and repairers	178	70	39.3	10.7	5.1	2.2	2.8	3.9
156	Construction trades	111	7	6.3	3.6	3.6	–	–	3.6
157	Other precision prod., craft, and repair	933	113	12.1	3.8	2.3	1.5	1.2	2.4
158	Machine operators, assemblers and inspectors	3,246	288	8.9	1.2	0.4	0.3	1.2	0.7
159	Machine operators and tenders, exc. precision	2,175	141	6.5	0.8	0.1	0.3	1.7	0.5
160	Fabricators, assemblers, inspectors, and samplers	1,071	147	13.7	1.9	0.8	0.3	0.2	1.1
161	Transportation and material moving	480	33	6.9	0.2	0.8	0.2	0.6	1.7
162	Motor vehicle operators	430	27	6.3	–	–	–	–	1.4
163	Other transportation and material moving occs	50	6	(B)	(B)	(B)	(B)	(B)	(B)
164	Handlers, equipment cleaners and laborers	917	94	10.3	0.8	0.7	–	0.7	0.7
165	Construction laborers	27	2	(B)	(B)	(B)	(B)	(B)	(B)
166	Freight, stock and material handlers	257	29	11.3	0.8	0.8	–	–	–
167	Other handlers, equipment cleaners, and laborers	633	63	10.0	0.8	0.6	–	0.9	0.9
168	Farming, forestry and fishing	564	26	4.6	2.5	1.1	0.4	0.7	1.4
169	Farm operators and managers	218	10	4.6	2.8	0.5	0.9	0.9	0.9
170	Farm workers and related occupations	339	16	4.7	2.4	1.5	–	0.6	1.8
171	Forestry and fishing	7	-	(B)	(B)	(B)	(B)	(B)	(B)

– Rounds to zero.

B Base is less than 75,000 persons.

[1]Multiple uses allowed by respondents

Table 6. **Uses of Computer at Work, by Sex and Intermediate Occupation: October 1989**—Continued

(Numbers in thousands)

	Uses computer at work[1]													
Calendar	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no
6.8	5.6	9.8	2.3	6.0	10.3	7.7	5.8	5.4	6.9	8.4	1.8	8.1	1.9	115
13.8	12.0	19.2	4.2	11.9	20.8	19.7	9.2	10.2	14.4	16.0	2.9	10.2	2.4	116
14.1	12.9	21.4	4.4	7.7	33.5	22.2	8.5	0.4	5.6	14.1	3.6	19.8	3.6	117
14.4	10.9	18.7	4.0	11.6	18.0	16.1	8.8	12.0	14.2	15.7	3.0	8.4	1.9	118
12.8	14.0	19.7	4.6	12.9	24.6	26.0	10.1	8.1	15.8	16.6	2.5	12.2	3.3	119
7.8	5.2	10.8	3.8	7.8	12.1	9.5	14.5	1.5	2.9	5.1	5.1	9.2	1.6	120
28.5	29.7	27.2	29.1	36.7	43.7	53.8	18.4	2.5	5.7	17.1	7.0	13.9	1.3	121
27.0	36.6	40.8	18.7	56.5	54.5	57.9	32.2	9.4	8.8	14.6	6.3	12.1	2.2	122
14.4	16.2	20.7	18.0	18.9	43.2	47.7	16.2	1.8	1.8	9.9	6.3	12.6	5.4	123
3.0	3.6	5.5	1.2	3.0	13.3	9.1	2.4	3.0	6.1	4.8	-	6.7	2.4	124
7.0	2.9	11.7	0.9	2.8	11.6	9.8	8.2	1.3	4.5	7.6	0.6	16.8	2.0	125
8.5	7.5	13.0	4.1	13.3	18.1	15.7	26.6	0.3	2.4	4.4	2.7	8.9	-	126
4.4	0.6	5.3	2.0	5.2	4.8	2.2	22.2	0.3	0.6	2.0	10.2	4.7	1.0	127
10.2	10.7	13.6	-	3.4	12.6	3.9	1.9	-	5.3	4.4	1.9	8.3	1.0	128
8.3	5.7	10.8	4.5	4.8	10.9	5.8	5.2	2.2	3.1	4.8	1.8	8.2	1.9	129
8.2	6.9	12.4	6.2	13.8	16.1	17.2	7.3	1.4	5.6	7.7	1.4	16.8	2.2	130
6.9	2.2	9.0	2.8	4.2	10.8	13.5	5.8	0.9	5.1	5.9	-	18.6	1.7	131
6.1	6.6	9.6	20.1	10.9	13.1	16.6	7.4	0.9	3.5	12.2	1.7	13.5	2.6	132
12.8	19.8	23.1	7.3	41.1	32.1	27.6	11.5	2.8	8.3	10.0	4.8	13.5	3.3	133
4.1	3.7	6.4	1.1	3.2	5.4	5.2	2.1	13.7	5.6	10.6	0.8	5.6	1.2	134
4.4	5.0	8.6	1.5	4.1	4.7	5.8	3.7	12.6	7.7	15.4	0.6	5.6	1.4	135
13.3	10.1	21.5	3.6	9.2	17.5	18.7	5.5	31.2	8.8	13.4	1.8	16.2	2.2	136
6.9	5.5	10.2	1.9	4.7	8.0	9.1	3.0	24.3	14.6	24.3	3.0	5.8	1.7	137
1.2	1.4	1.4	0.3	1.2	2.3	1.0	0.4	8.6	3.2	6.9	0.4	2.9	0.8	138
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	139
10.4	9.1	15.5	2.8	8.3	15.7	8.9	6.3	7.2	12.9	12.7	1.5	12.8	3.6	140
16.0	14.7	23.7	4.2	11.2	18.8	18.1	7.9	9.3	14.4	15.1	-	13.5	7.7	141
16.7	12.9	22.3	7.0	27.1	32.3	18.5	10.4	13.7	24.5	27.1	2.6	19.3	5.2	142
14.2	11.2	18.9	3.4	8.9	15.6	8.1	6.4	5.4	11.2	10.7	1.9	9.7	3.6	143
6.2	5.6	10.1	2.3	7.3	12.7	10.8	4.9	10.8	21.6	15.0	2.1	8.7	2.2	144
2.8	4.9	4.9	0.3	2.8	1.5	2.1	1.5	6.4	0.9	5.8	-	4.6	2.1	145
8.4	8.3	14.3	2.2	6.8	15.9	7.9	6.4	6.8	10.7	12.5	1.0	16.3	3.7	146
1.5	0.4	1.3	0.2	0.5	1.2	0.5	0.6	1.1	0.9	1.4	0.3	2.0	0.5	147
0.1	-	-	-	-	-	-	-	-	-	0.1	0.6	-	-	148
2.1	1.7	8.2	1.7	5.2	12.0	2.7	4.8	-	3.1	4.8	-	8.2	2.4	149
0.6	0.3	0.5	0.2	0.4	0.2	0.1	0.2	2.3	0.8	1.3	-	1.9	0.5	150
3.6	0.9	2.1	0.2	0.9	2.5	1.2	1.1	0.7	1.9	2.9	0.2	4.3	1.2	151
0.5	-	0.9	-	0.2	0.4	-	-	0.5	0.2	0.6	0.2	0.6	-	152
1.8	0.4	1.3	0.4	0.2	0.8	0.8	0.9	0.7	0.6	0.7	0.8	0.9	0.2	153
2.1	2.9	4.5	1.9	2.5	3.8	3.4	3.3	0.7	2.9	4.4	-	4.3	1.0	154
3.9	8.4	15.7	3.9	3.4	12.4	12.4	11.2	2.2	9.0	9.6	-	8.4	3.9	155
0.0	-	-	-	1.8	1.8	1.8	-	1.8	1.8	2.7	-	1.8	-	156
2.0	2.1	2.9	1.7	2.4	2.4	1.9	2.1	0.3	1.9	3.6	-	3.9	0.5	157
0.5	0.3	0.6	0.6	0.8	1.3	0.9	0.4	0.6	1.0	3.0	0.1	2.3	0.5	158
0.4	0.2	0.3	0.7	0.6	1.1	0.8	0.3	0.4	0.8	1.7	0.1	1.6	0.1	159
0.7	0.6	1.0	0.4	1.2	1.6	1.0	0.7	0.8	1.4	5.4	0.1	3.9	1.2	160
0.2	0.2	0.2	-	0.6	0.4	0.6	-	0.6	0.4	2.7	0.2	3.5	-	161
0.0	-	-	-	0.5	-	-	-	0.5	-	1.9	-	3.7	-	162
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	163
1.0	0.1	1.3	-	0.9	1.4	0.5	1.0	1.0	2.4	5.9	0.1	1.5	0.8	164
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	165
0.8	-	0.8	-	-	1.9	-	0.8	1.9	3.5	6.6	-	2.3	0.8	166
0.8	0.2	1.3	-	1.3	1.3	0.5	1.1	0.6	2.1	5.8	0.2	1.3	0.8	167
0.0	0.5	0.7	0.2	0.9	0.7	1.4	0.2	1.1	0.9	0.7	1.6	0.9	0.5	168
0.0	-	0.5	0.5	-	0.9	0.5	0.5	0.5	-	0.5	0.9	1.4	-	169
0.0	0.9	0.9	-	1.5	0.6	2.1	-	1.5	1.5	0.9	2.1	0.6	0.9	170
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	171

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**

(Numbers in thousands)

Line no.	Sex and industry	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spread-sheet	Desktop publishing	Graphics	Book-keeping
	BOTH SEXES								
1	All industries	115,669	40,245	34.8	14.3	8.0	3.1	5.1	9.2
2	Agriculture	3,233	257	7.9	3.3	2.5	0.8	1.1	5.0
3	Agricultural services	931	137	14.7	6.7	4.8	1.8	2.7	9.8
4	Other agricultural	2,302	120	5.2	1.9	1.5	0.4	0.5	3.1
5	Mining	660	197	29.8	12.3	13.0	2.0	6.7	5.5
6	Construction	7,880	928	11.8	5.2	3.3	0.7	1.8	5.3
7	Manufacturing-durable goods	12,816	4,728	36.9	14.3	10.3	3.4	8.9	7.0
8	Lumber and wood products, exc. furniture	760	82	10.8	2.8	1.7	0.1	0.9	3.2
9	Furniture and fixtures	665	101	15.2	3.9	3.6	0.6	3.0	3.3
10	Stone, clay, glass, concrete products	678	156	23.0	8.0	6.9	1.0	5.8	7.5
11	Primary metals	845	238	28.2	9.2	8.3	2.6	6.3	6.2
12	Fabricated metals	1,236	338	27.3	6.8	6.1	0.9	3.2	5.9
13	Not specified metal industries	2	-	(B)	(B)	(B)	(B)	(B)	(B)
14	Machinery, exc. electrical	2,560	1,232	48.1	19.7	14.5	5.8	13.7	8.4
15	Electrical machinery, equipment supplies	2,049	966	47.1	19.5	14.9	5.1	11.5	10.1
16	Motor vehicles and equipment	1,182	347	29.4	11.3	8.8	1.9	5.7	4.8
17	Aircraft and parts	634	342	53.9	16.2	13.1	5.0	14.4	2.8
18	Other transportation equipment	871	400	45.9	20.0	10.9	2.9	12.5	5.9
19	Professional and photo equipment, watches	770	428	55.6	27.3	15.2	5.8	13.4	13.6
20	Toys, amusement and sporting goods	136	27	19.9	10.3	5.9	3.7	3.7	6.6
21	Misc. and nec. manufacturing industries	428	71	16.6	7.5	3.3	2.6	4.9	2.6
22	Manufacturing-nondurable goods	8,614	2,642	30.7	10.9	8.2	2.9	6.1	6.4
23	Food and kindred products	1,803	351	19.5	5.8	7.0	1.2	3.4	5.8
24	Tobacco manufacturers	47	18	(B)	(B)	(B)	(B)	(B)	(B)
25	Textile mill products	674	137	20.3	4.0	5.2	0.4	2.1	4.6
26	Apparel and other finished textile products	1,186	141	11.9	3.2	3.5	0.7	0.6	2.7
27	Paper and allied products	725	257	35.4	9.1	7.9	1.2	8.1	6.5
28	Printing, publishing, and allied industries	1,861	770	41.4	17.7	8.2	7.1	8.6	9.0
29	Chemicals and allied products	1,247	651	52.2	21.3	17.3	4.2	13.1	7.8
30	Petroleum and coal products	170	81	47.6	15.3	14.7	0.6	8.2	8.8
31	Rubber and misc. plastic products	754	211	28.0	9.5	5.7	2.8	4.8	5.7
32	Leather and leather products	147	25	17.0	3.4	3.4	1.4	2.0	4.8
33	Transportation, comm., and other public utilities	8,033	3,011	37.5	12.0	7.5	2.6	5.1	7.9
34	Transportation	4,994	1,357	27.2	6.7	4.6	1.3	2.5	6.4
35	Communications	1,490	1,015	68.1	26.0	13.6	6.6	10.4	11.6
36	Utilities and sanitary services	1,549	639	41.3	15.8	11.2	2.8	8.7	9.2
37	Wholesale and retail trade	22,794	6,008	26.4	6.3	4.9	1.3	1.8	9.0
38	Wholesale trade	4,844	1,888	39.0	13.4	10.4	3.0	4.4	14.2
39	Retail trade	17,950	4,120	23.0	4.4	3.5	0.9	1.1	7.6
40	Finance, insurance, and real estate	7,882	5,294	67.2	28.2	17.4	5.3	6.8	21.3
41	Banking and other finance	3,427	2,644	77.2	28.2	20.9	4.4	8.3	29.7
42	Insurance and real estate	4,455	2,650	59.5	28.2	14.8	6.0	5.7	14.9
43	Private household	897	8	0.9	0.4	0.1	-	0.1	0.1
44	Miscellaneous services	11,959	3,354	28.0	13.8	7.6	3.4	5.2	8.5
45	Business services	5,116	2,360	46.1	25.5	14.0	6.6	10.1	12.2
46	Repair services	2,106	317	15.1	4.4	3.4	0.5	1.4	5.3
47	Personal services, exc. private household	3,399	397	11.7	3.4	1.7	1.0	0.4	4.7
48	Entertainment and recreation	1,338	280	20.9	10.5	4.9	2.2	4.3	8.4
49	Professional and related services	25,199	10,499	41.7	21.0	8.0	5.0	6.1	10.5
50	Hospitals	4,614	2,305	50.0	12.9	5.2	2.3	3.1	7.4
51	Health services, exc. hospitals	4,443	1,217	27.4	11.7	5.0	1.8	2.3	11.9
52	Educational services	9,403	4,036	42.9	24.7	8.0	7.1	8.7	7.3
53	Social services	2,252	484	21.5	10.9	4.1	2.8	2.3	5.7
54	Other professional services	4,487	2,457	54.8	35.9	15.8	7.8	9.4	21.3
55	Forestry and fisheries	162	57	35.2	17.9	16.0	6.2	9.9	6.2
56	Public administration	5,538	3,266	59.0	29.0	13.0	4.2	8.1	10.8
57	Justice, public order, and safety	1,961	920	46.9	16.4	4.8	2.1	3.2	6.0
58	Admin. of human resource programs	647	427	66.0	28.3	10.7	3.6	6.5	10.0
59	National security and internal affairs	934	658	70.4	42.8	21.8	8.1	17.1	10.9
60	Other public administration	1,996	1,261	63.2	35.2	17.6	4.7	9.1	15.6

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**

(Numbers in thousands)

Calendar	Uses computer at work[1]													
	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no.
6.7	5.3	9.0	3.2	6.7	9.5	9.0	5.2	5.5	6.1	8.9	1.8	6.4	2.1	1
1.1	0.8	1.7	0.6	1.6	1.7	2.3	0.6	2.0	2.9	2.9	0.9	1.6	0.2	2
3.2	2.5	4.4	1.8	3.5	3.8	4.8	1.2	4.7	8.2	6.7	1.8	3.1	0.4	3
0.3	0.1	0.6	0.1	0.8	0.9	1.3	0.4	0.9	0.8	1.4	0.5	1.0	0.2	4
5.0	4.8	6.2	3.5	6.1	9.1	12.3	4.1	3.6	5.3	7.1	1.8	4.1	2.6	5
2.6	0.9	2.2	1.5	2.2	2.4	2.9	1.0	2.0	3.5	3.4	0.7	1.8	0.7	6
9.0	7.8	9.8	6.9	10.6	11.6	12.0	5.6	5.3	5.9	13.2	2.1	6.0	2.7	7
0.8	0.5	0.4	1.1	2.0	1.7	1.6	0.4	2.1	2.0	3.9	0.1	1.6	0.5	8
1.8	1.2	1.5	2.6	2.7	3.3	3.9	1.1	3.2	3.8	5.7	0.3	3.0	1.1	9
5.2	4.4	5.9	3.2	5.8	6.3	7.2	2.7	5.3	6.6	10.8	0.9	4.1	1.6	10
5.4	2.1	5.9	2.4	5.1	6.5	7.1	3.3	3.7	5.8	10.1	0.7	3.6	4.1	11
5.4	3.2	4.0	3.1	6.1	6.3	6.5	3.0	6.1	6.8	11.2	0.7	5.1	2.0	12
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	13
14.6	14.1	17.4	11.1	16.3	17.0	16.7	9.2	8.6	8.9	17.0	4.6	7.4	2.8	14
10.6	9.5	12.0	9.8	13.7	15.5	16.2	6.3	6.0	6.1	17.9	2.5	7.4	3.5	15
6.8	5.9	6.9	5.2	6.9	7.9	9.8	3.7	3.6	4.3	11.3	1.4	3.7	3.1	16
11.5	9.8	12.0	10.7	15.8	15.9	17.5	8.2	1.3	3.9	11.4	1.3	9.8	6.0	17
13.8	10.6	11.1	9.3	14.7	16.5	18.1	7.7	1.1	3.7	14.5	1.4	8.0	2.5	18
12.7	12.6	16.5	9.9	18.2	21.2	18.7	10.5	8.8	7.4	19.2	3.6	10.5	3.1	19
3.7	2.9	6.6	4.4	5.9	5.9	7.4	2.9	9.6	8.8	11.0	2.9	1.5	-	20
3.3	4.0	4.4	1.6	1.9	4.0	3.3	1.9	3.5	2.3	6.5	0.7	3.3	0.5	21
5.5	4.2	6.3	3.4	5.1	6.8	7.8	3.0	4.9	5.7	10.2	1.1	4.8	2.1	22
3.4	1.6	3.9	1.8	2.9	4.1	5.9	1.8	4.4	4.2	8.9	0.4	2.5	0.8	23
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	24
3.0	1.5	4.0	2.1	2.4	3.7	4.6	2.7	3.4	5.2	9.9	1.0	4.5	1.8	25
1.5	0.8	1.1	0.4	1.3	2.2	2.7	0.7	3.4	3.5	5.6	0.2	1.9	0.7	26
8.1	4.3	6.1	5.1	8.7	8.0	10.9	5.5	4.3	9.9	14.8	0.7	4.8	3.2	27
7.0	5.4	9.7	5.1	5.8	8.0	7.1	3.4	7.6	6.6	7.9	1.7	6.8	1.6	28
10.4	10.4	11.4	5.5	9.9	13.9	16.1	4.9	5.6	6.4	16.7	1.8	8.7	5.4	29
8.2	8.8	8.8	2.9	11.2	15.9	23.5	6.5	3.5	7.6	10.0	2.4	5.3	4.7	30
3.4	4.0	5.7	4.5	5.2	6.9	4.5	3.2	3.3	5.2	11.4	1.5	4.0	1.9	31
2.7	1.4	0.7	-	-	2.0	3.4	2.0	4.1	5.4	7.5	-	2.7	0.7	32
9.4	7.1	12.7	3.1	7.8	10.4	9.7	4.9	5.2	6.2	8.9	1.2	7.3	2.7	33
7.9	3.8	8.1	1.3	4.4	6.0	5.8	4.0	5.1	6.1	7.6	0.8	6.3	1.5	34
15.6	17.6	31.0	7.4	17.0	21.4	19.3	9.5	8.7	8.4	9.7	3.0	11.9	5.2	35
8.7	7.5	10.1	4.9	9.9	14.3	13.2	3.5	2.1	4.6	12.4	0.8	5.9	3.9	36
3.5	3.3	5.4	1.2	3.5	4.8	5.2	2.5	11.3	8.8	14.1	0.9	3.8	1.3	37
6.2	6.3	10.2	2.5	6.8	9.0	9.4	4.8	16.5	15.6	21.2	1.8	4.1	2.2	38
2.8	2.6	4.1	0.8	2.6	3.7	4.0	1.9	10.0	7.0	12.2	0.6	3.7	1.1	39
9.9	12.5	19.9	4.3	12.0	21.0	22.6	9.0	12.9	8.6	9.3	2.4	14.4	3.7	40
9.6	13.5	21.0	4.5	12.5	23.4	27.7	9.7	9.0	7.7	9.3	2.2	17.2	4.6	41
10.2	11.8	19.1	4.1	11.6	19.2	18.7	8.5	16.0	9.4	9.4	2.5	12.2	3.1	42
0.2	-	0.1	-	-	0.4	0.1	0.1	-	0.1	0.2	0.4	0.1	-	43
6.3	5.1	8.4	3.3	7.7	8.5	7.5	4.1	5.4	6.5	6.4	2.0	4.8	1.5	44
10.4	9.9	15.5	6.5	14.7	16.4	14.2	7.9	8.0	9.7	8.5	3.5	7.3	2.4	45
2.5	2.0	2.8	0.8	3.0	2.8	3.1	1.6	3.8	6.3	7.5	1.1	2.7	1.0	46
2.9	1.1	2.8	0.6	1.6	1.9	1.7	1.0	3.2	2.7	3.1	0.4	2.5	0.6	47
5.0	1.9	4.8	1.6	3.7	4.1	3.4	1.6	3.9	4.1	4.7	1.6	4.3	1.1	48
8.3	4.4	10.0	3.3	7.1	11.6	9.0	9.2	1.1	4.9	5.3	3.3	8.6	2.0	49
8.2	3.9	12.5	2.0	5.6	13.0	11.6	7.0	0.5	6.0	7.8	0.7	17.0	3.1	50
7.2	3.2	6.3	1.2	3.8	7.2	6.3	3.0	1.1	6.3	3.9	0.9	6.5	1.5	51
8.5	5.0	9.9	3.7	8.8	12.4	7.8	16.6	0.6	2.7	5.6	6.1	6.7	1.8	52
3.9	1.6	5.7	0.8	3.6	6.0	3.7	3.3	0.8	1.5	2.0	1.0	4.8	1.3	53
11.4	6.2	13.4	7.2	9.9	15.4	14.2	4.9	2.8	8.8	5.0	3.5	7.9	2.2	54
5.6	12.3	19.8	4.3	11.7	16.7	9.3	9.9	1.9	4.9	12.3	1.2	2.5	3.1	55
10.8	10.1	18.3	4.4	10.6	19.9	15.1	7.8	0.7	4.3	9.4	1.5	12.2	4.7	56
3.8	4.5	17.7	2.6	5.5	13.9	8.3	5.3	0.4	2.1	5.5	1.3	13.9	3.9	57
10.0	8.8	17.8	2.5	10.8	18.9	16.5	7.4	0.3	2.3	8.0	0.6	19.2	3.6	58
17.0	21.9	21.3	8.0	16.7	29.4	21.2	12.8	1.1	5.4	15.4	2.0	9.3	7.3	59
10.1	10.4	17.5	5.0	12.7	21.6	18.5	7.9	1.1	6.6	10.9	1.7	9.8	4.6	60

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**—Continued

(Numbers in thousands)

Line no	Sex and industry	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spreadsheet	Desktop publishing	Graphics	Bookkeeping
	MALE								
61	All industries	63,416	18,960	29.9	11.2	8.2	2.8	5.9	7.2
62	Agriculture	2,507	150	6.0	2.3	2.1	0.4	0.9	3.9
63	Agricultural services	688	63	9.2	4.5	3.3	0.7	1.9	6.5
64	Other agricultural	1,819	87	4.8	1.5	1.6	0.3	0.5	3.0
65	Mining	557	128	23.0	7.0	9.2	1.4	5.2	1.3
66	Construction	7,165	602	8.4	3.1	2.5	0.5	1.3	3.0
67	Manufacturing-durable goods	9,439	3,310	35.1	12.2	9.7	3.1	9.1	5.6
68	Lumber and wood products, exc. furniture	630	62	9.8	2.5	1.9	-	1.0	3.3
69	Furniture and fixtures	465	55	11.8	2.6	2.2	0.4	3.2	1.3
70	Stone, clay, glass, concrete products	538	114	21.2	7.2	6.3	1.1	6.3	6.7
71	Primary metals	737	191	25.9	7.1	7.5	2.0	5.7	5.0
72	Fabricated metals	955	235	24.6	4.8	5.0	0.9	2.4	5.0
73	Not specified metal industries	2	-	(B)	(B)	(B)	(B)	(B)	(B)
74	Machinery, exc. electrical	1,958	864	44.1	15.4	12.6	4.7	13.0	6.3
75	Electrical machinery, equipment supplies	1,231	638	51.8	22.7	18.0	5.6	14.9	9.3
76	Motor vehicles and equipment	940	268	28.5	10.4	8.6	2.1	6.3	3.8
77	Aircraft and parts	487	261	53.6	12.5	11.5	3.9	14.2	1.6
78	Other transportation equipment	690	289	41.9	15.5	10.7	3.0	12.2	4.2
79	Professional and photo equipment, watches	472	283	60.0	26.7	15.0	4.7	15.5	11.9
80	Toys, amusement and sporting goods	75	14	18.7	6.7	6.7	6.7	6.7	6.7
81	Misc. and nec. manufacturing industries	259	36	13.9	3.9	2.3	2.7	4.6	1.9
82	Manufacturing-nondurable goods	5,122	1,595	31.1	9.4	8.5	2.8	6.9	5.4
83	Food and kindred products	1,216	226	18.6	4.0	7.2	1.2	3.4	4.8
84	Tobacco manufacturers	31	9	(B)	(B)	(B)	(B)	(B)	(B)
85	Textile mill products	340	66	19.4	1.2	4.4	0.6	2.9	2.9
86	Apparel and other finished textile products	280	51	18.2	2.9	7.9	0.7	1.8	4.3
87	Paper and allied products	567	190	33.5	6.2	7.8	1.2	7.2	4.8
88	Printing, publishing, and allied industries	1,105	401	36.3	14.9	7.3	6.2	8.0	7.3
89	Chemicals and allied products	899	458	50.9	18.5	15.5	4.0	14.2	6.0
90	Petroleum and coal products	145	64	44.1	9.7	12.4	0.7	7.6	9.0
91	Rubber and misc. plastic products	488	124	25.4	6.8	4.1	2.0	4.9	3.3
92	Leather and leather products	51	6	(B)	(B)	(B)	(B)	(B)	(B)
93	Transportation, comm., and other public utilities	5,817	1,663	28.6	7.8	6.3	1.8	4.8	4.7
94	Transportation	3,752	759	20.2	4.4	4.1	0.7	2.4	3.8
95	Communications	818	489	59.8	20.3	13.7	6.8	10.6	8.3
96	Utilities and sanitary services	1,247	415	33.3	10.0	7.9	1.9	8.2	4.8
97	Wholesale and retail trade	12,011	3,075	25.6	5.7	5.7	1.5	2.3	8.4
98	Wholesale trade	3,397	1,121	33.0	9.6	9.6	2.8	4.6	11.0
99	Retail trade	8,614	1,954	22.7	4.2	4.1	1.1	1.4	7.3
100	Finance, insurance, and real estate	3,229	1,810	56.1	22.7	19.6	5.0	8.8	15.8
101	Banking and other finance	1,235	857	69.4	24.6	27.3	5.3	11.9	21.9
102	Insurance and real estate	1,994	953	47.8	21.5	14.8	4.9	6.9	12.0
103	Private household	119	4	3.4	3.4	0.8	-	0.8	0.8
104	Miscellaneous services	6,272	1,671	26.6	12.1	8.3	3.5	6.3	7.7
105	Business services	2,588	1,153	44.6	23.3	16.0	7.3	12.6	11.6
106	Repair services	1,785	205	11.5	3.2	2.2	0.3	1.1	3.5
107	Personal services, exc. private household	1,080	153	14.2	3.2	2.4	0.7	0.6	5.8
108	Entertainment and recreation	819	160	19.5	8.1	5.0	2.2	5.1	7.3
109	Professional and related services	7,868	3,289	41.8	22.4	11.8	6.5	10.4	11.3
110	Hospitals	1,045	417	39.9	9.1	6.6	2.3	5.0	4.6
111	Health services, exc. hospitals	980	277	28.3	14.9	7.2	3.2	5.6	10.9
112	Educational services	2,991	1,293	43.2	25.9	11.8	8.8	13.5	8.3
113	Social services	489	130	26.6	13.5	9.0	2.7	5.1	9.4
114	Other professional services	2,363	1,172	49.6	28.9	16.5	7.5	12.0	18.7
115	Forestry and fisheries	134	42	31.3	16.4	14.2	6.0	6.7	5.2
116	Public administration	3,175	1,622	51.1	22.4	12.3	3.9	9.3	8.7
117	Justice, public order, and safety	1,376	578	42.0	12.1	3.6	1.5	2.3	4.8
118	Admin. of human resource programs	199	125	62.8	23.1	18.1	3.5	11.6	12.6
119	National security and internal affairs	609	400	65.7	38.4	22.3	10.3	20.0	11.8
120	Other public administration	991	519	52.4	26.7	17.3	3.5	11.8	11.5

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**—Continued

(Numbers in thousands)

Calendar	Uses computer at work[1]													
	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no.
6.5	5.0	8.4	3.9	7.2	8.9	10.0	4.7	5.5	5.5	9.2	1.9	5.0	2.2	61
0.8	0.4	1.1	0.4	1.4	1.4	1.9	0.5	1.4	2.0	2.8	0.7	1.2	0.1	62
2.2	1.2	2.6	1.2	2.5	2.6	3.3	0.9	2.8	5.2	5.5	1.3	1.2	0.3	63
0.2	0.2	0.5	0.1	0.9	0.9	1.3	0.3	0.9	0.8	1.7	0.4	1.2	–	64
3.4	3.9	4.8	3.1	4.3	7.4	11.1	4.3	2.5	3.2	6.3	1.8	2.5	2.7	65
2.1	0.6	1.4	1.4	1.7	1.6	2.4	0.7	1.4	2.2	2.5	0.5	1.4	0.6	66
8.8	7.4	9.3	7.9	11.2	11.2	12.6	5.6	5.0	5.0	12.6	2.2	5.5	2.9	67
0.8	0.3	0.5	1.0	2.1	1.7	1.9	0.3	1.9	2.2	3.3	0.2	1.3	0.6	68
1.3	1.3	0.9	3.0	2.8	3.2	3.7	0.2	2.2	1.5	4.5	–	1.3	0.9	69
5.6	4.6	5.4	3.5	5.8	5.8	6.9	2.2	5.4	5.6	9.9	1.1	3.7	1.7	70
5.6	1.9	5.3	2.4	4.7	6.0	6.8	3.0	3.5	5.2	9.4	0.8	3.0	4.1	71
5.9	2.6	4.0	3.4	7.1	5.0	6.6	2.9	6.2	5.9	10.6	0.5	4.3	2.3	72
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	73
13.8	12.5	15.4	12.4	17.2	15.7	15.9	8.7	7.4	7.4	16.2	4.7	7.3	3.0	74
11.6	12.0	14.5	12.9	17.1	18.2	21.5	8.1	7.9	5.7	19.0	3.2	6.6	4.5	75
6.4	5.3	6.7	5.9	7.0	8.2	11.0	3.9	3.2	3.5	10.9	1.5	3.4	3.2	76
10.9	8.2	10.9	12.3	14.8	14.2	17.7	8.6	1.2	4.1	13.6	1.6	11.1	5.1	77
12.6	9.1	10.3	9.4	14.1	15.1	17.7	7.2	0.7	2.5	12.0	1.3	8.3	2.9	78
14.2	14.4	17.4	14.2	21.0	22.5	22.5	12.1	8.3	6.6	19.9	4.2	11.7	3.6	79
4.0	1.3	8.0	8.0	9.3	6.7	6.7	5.3	10.7	12.0	8.0	4.0	2.7	–	80
2.7	2.7	5.0	2.7	2.7	4.2	4.2	2.3	3.5	1.5	6.9	0.4	0.8	0.4	81
6.1	4.1	6.8	4.0	6.4	7.1	9.4	3.4	4.8	5.4	11.4	1.1	5.2	2.7	82
3.5	1.9	3.8	2.2	3.9	4.1	6.1	1.6	5.5	5.0	9.9	0.7	2.5	0.6	83
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	84
3.2	1.2	4.1	2.9	4.1	2.9	6.5	3.5	4.1	5.3	9.4	0.3	4.7	2.9	85
4.3	2.1	4.3	1.1	4.3	5.4	5.7	2.1	4.6	6.8	10.7	0.7	2.9	2.5	86
8.1	3.2	5.6	4.9	9.2	7.6	11.1	6.3	3.0	8.8	14.3	0.7	4.6	3.7	87
6.8	5.1	9.6	4.5	5.7	6.6	7.6	2.5	6.2	5.2	7.9	1.6	5.9	2.1	88
10.2	8.9	10.9	5.9	10.5	13.6	16.5	5.2	4.9	4.8	17.9	1.6	9.7	6.0	89
8.3	7.6	6.2	2.8	12.4	13.1	25.5	6.2	2.8	7.6	11.7	1.4	6.2	4.1	90
2.9	2.0	5.9	6.1	4.7	5.5	5.3	2.5	2.7	2.9	10.0	1.2	4.3	1.8	91
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	92
7.1	5.4	9.6	3.0	6.7	8.0	9.0	4.0	3.2	4.0	8.2	1.2	5.4	2.6	93
5.4	3.0	6.1	1.3	3.6	4.7	5.5	3.1	2.8	3.9	7.2	0.6	4.4	1.4	94
16.5	18.0	28.7	7.7	18.0	19.8	20.5	10.3	7.1	6.8	8.1	3.9	9.7	5.5	95
5.9	4.6	7.4	4.9	8.5	10.3	11.9	2.8	1.7	2.2	11.5	1.0	5.6	4.5	96
4.1	3.3	5.8	1.5	4.1	5.2	6.5	2.9	12.0	9.5	15.6	1.2	3.3	1.4	97
5.5	5.1	9.2	2.7	6.4	8.7	9.1	4.1	15.5	13.1	19.4	1.9	2.9	2.1	98
3.5	2.6	4.4	1.1	3.1	3.9	5.4	2.4	10.6	8.0	14.1	0.9	3.5	1.2	99
11.2	11.5	19.4	4.5	11.5	20.3	26.5	8.8	15.5	8.2	9.6	3.9	9.2	3.4	100
12.4	15.6	24.6	4.7	12.6	26.4	38.6	10.5	12.1	7.8	11.2	4.5	11.5	3.2	101
10.5	8.9	16.2	4.4	10.9	16.6	19.1	7.7	17.6	8.5	8.6	3.5	7.8	3.6	102
0.8	–	0.8	–	–	3.4	0.8	0.8	–	0.8	0.8	–	0.8	–	103
6.9	5.3	8.7	4.3	9.0	8.9	9.2	4.7	5.5	6.3	6.5	2.4	4.6	1.8	104
12.7	10.8	17.3	9.0	18.2	18.2	18.0	9.3	9.0	9.8	8.3	4.8	6.9	2.7	105
2.0	1.8	2.2	0.8	2.4	2.0	3.0	1.3	2.9	4.6	6.2	1.0	1.7	1.1	106
2.8	1.0	1.6	0.4	1.9	1.7	2.2	1.1	2.9	3.0	4.1	0.3	3.6	1.0	107
4.6	1.3	4.9	2.1	3.9	4.0	4.4	2.0	3.9	3.7	4.6	0.6	4.9	1.1	108
9.9	5.8	11.5	5.7	10.9	14.6	14.1	10.1	1.6	4.9	5.9	4.2	7.7	2.6	109
6.6	3.8	8.0	2.5	8.7	14.3	11.7	6.4	0.5	5.1	7.3	1.0	10.7	4.9	110
9.2	5.0	9.5	2.1	5.5	9.9	11.9	4.4	2.6	5.6	5.6	2.4	6.3	1.9	111
9.8	7.0	12.3	5.6	13.0	15.8	13.9	18.0	0.8	2.4	6.5	5.7	7.1	1.9	112
8.0	2.9	12.3	2.5	8.0	10.8	9.0	4.1	1.2	2.2	3.9	1.6	8.2	1.4	113
12.2	6.0	12.8	9.5	12.0	15.9	17.6	5.2	2.9	8.3	5.1	4.9	7.8	3.0	114
4.5	11.2	18.7	3.7	9.7	14.2	7.5	6.7	2.2	3.7	8.2	1.5	2.2	1.5	115
10.2	9.8	18.6	4.7	11.2	18.5	16.7	7.6	0.6	3.1	8.4	1.3	10.2	5.3	116
7.3	3.4	17.3	2.0	4.1	11.0	7.6	3.8	0.4	1.0	4.5	1.2	12.4	4.6	117
8.5	11.1	19.6	4.0	14.1	26.1	25.6	9.5	1.0	2.5	7.0	0.5	16.6	5.5	118
17.6	22.0	24.1	10.7	19.4	28.7	25.1	14.6	0.8	5.3	15.1	2.5	7.6	8.4	119
9.9	11.0	16.8	4.9	15.5	21.0	22.3	8.3	0.8	4.7	9.9	1.0	7.6	4.2	120

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**—Continued

(Numbers in thousands)

Line no.	Sex and industry	All workers	Uses computer at work[1]						
			Total	Percent	Word processing	Spreadsheet	Desktop publishing	Graphics	Bookkeeping
	FEMALE								
121	All industries	52,253	21,285	40.7	18.1	7.8	3.5	4.1	11.7
122	Agriculture	726	107	14.7	6.6	3.9	2.2	2.1	8.8
123	Agricultural services	243	74	30.5	12.8	9.1	4.9	4.9	18.9
124	Other agricultural	483	33	6.8	3.5	1.2	0.8	0.6	3.7
125	Mining	103	69	67.0	40.8	34.0	4.9	14.6	28.2
126	Construction	715	326	45.6	25.5	11.7	3.5	6.3	28.3
127	Manufacturing-durable goods	3,377	1,418	42.0	20.2	12.0	4.5	8.3	10.9
128	Lumber and wood products, exc. furniture	130	20	15.4	3.8	0.8	0.8	0.8	2.3
129	Furniture and fixtures	200	46	23.0	7.0	7.0	1.0	2.5	8.0
130	Stone, clay, glass, concrete products	140	42	30.0	10.7	9.3	0.7	3.6	10.7
131	Primary metals	108	47	43.5	24.1	13.9	6.5	10.2	13.9
132	Fabricated metals	281	103	36.7	13.5	10.0	0.7	5.7	8.9
133	Not specified metal industries	-	-	(B)	(B)	(B)	(B)	(B)	(B)
134	Machinery, exc. electrical	602	368	61.1	33.7	20.6	9.3	15.9	15.0
135	Electrical machinery, equipment supplies	818	328	40.1	14.7	10.1	4.3	6.5	11.1
136	Motor vehicles and equipment	242	79	32.6	14.9	9.5	1.2	3.3	8.7
137	Aircraft and parts	147	81	55.1	28.6	18.4	8.8	15.0	6.8
138	Other transportation equipment	181	111	61.3	37.0	11.6	2.2	13.8	12.2
139	Professional and photo equipment, watches	298	145	48.7	28.2	15.4	7.7	10.1	16.4
140	Toys, amusement, and sporting goods	61	13	21.3	14.8	4.9	-	-	6.6
141	Misc. and nec. manufacturing industries	169	35	20.7	13.0	4.7	2.4	5.3	3.6
142	Manufacturing-nondurable goods	3,492	1,047	30.0	13.2	7.8	3.0	4.9	7.8
143	Food and kindred products	587	125	21.3	9.4	6.8	1.0	3.6	7.8
144	Tobacco manufacturers	16	9	(B)	(B)	(B)	(B)	(B)	(B)
145	Textile mill products	334	71	21.3	6.9	6.0	0.3	1.2	6.3
146	Apparel and other finished textile products	906	90	9.9	3.3	2.1	0.7	0.2	2.2
147	Paper and allied products	158	67	42.4	19.6	8.2	1.3	11.4	12.7
148	Printing, publishing, and allied industries	756	369	48.8	21.8	9.4	8.3	9.5	11.5
149	Chemicals and allied products	348	193	55.5	28.4	22.1	4.6	10.1	12.4
150	Petroleum and coal products	25	17	(B)	(B)	(B)	(B)	(B)	(B)
151	Rubber and misc. plastic products	266	87	32.7	14.7	8.6	4.1	4.5	10.2
152	Leather and leather products	96	19	19.8	-	-	-	-	7.3
153	Transportation, comm., and other public utilities	2,216	1,348	60.8	23.0	10.8	4.6	6.0	16.6
154	Transportation	1,242	598	48.1	13.7	6.0	3.1	2.7	14.4
155	Communications	672	526	78.3	32.9	13.5	6.3	10.1	15.6
156	Utilities and sanitary services	302	224	74.2	39.4	24.8	6.6	10.6	27.5
157	Wholesale and retail trade	10,783	2,933	27.2	6.9	4.1	1.1	1.2	9.7
158	Wholesale trade	1,447	767	53.0	22.2	12.4	3.4	4.0	21.6
159	Retail trade	9,336	2,166	23.2	4.6	2.8	0.7	0.8	7.8
160	Finance, insurance, and real estate	4,653	3,484	74.9	32.0	15.9	5.5	5.4	25.1
161	Banking and other finance	2,192	1,787	81.5	30.2	17.2	4.0	6.2	34.0
162	Insurance and real estate	2,461	1,697	69.0	33.6	14.8	6.9	4.7	17.1
163	Private household	778	4	0.5	-	-	-	-	-
164	Miscellaneous services	5,687	1,683	29.6	15.6	6.9	3.4	4.0	9.2
165	Business services	2,528	1,207	47.7	27.7	12.0	6.0	7.6	12.9
166	Repair services	321	112	34.9	11.2	9.7	1.9	2.8	15.6
167	Personal services, exc. private household	2,319	244	10.5	3.4	1.4	1	0.4	4.2
168	Entertainment and recreation services	519	120	23.1	14.3	4.6	2	3.1	10.2
169	Professional and related services	17,331	7,210	41.6	20.4	6.3	4.4	4.2	10.1
170	Hospitals	3,569	1,888	52.9	14.1	4.8	2.3	2.6	8.2
171	Health services, exc. hospitals	3,463	940	27.1	10.8	4.4	1.4	1.4	12.1
172	Educational services	6,412	2,743	42.8	24.1	6.2	6.3	6.4	6.8
173	Social services	1,763	354	20.1	10.2	2.7	2.8	1.5	4.7
174	Other professional services	2,124	1,285	60.5	43.8	15.1	8.1	6.6	24.3
175	Forestry and fisheries	28	15	(B)	(B)	(B)	(B)	(B)	(B)
176	Public administration	2,363	1,644	69.6	37.9	13.8	4.6	6.4	13.5
177	Justice, public order, and safety	585	342	58.5	26.5	7.7	3.6	5.1	8.9
178	Admin. of human resource programs	448	302	67.4	30.6	7.4	3.6	4.2	8.9
179	National security and internal affairs	325	258	79.4	51.1	20.9	4.0	11.7	9.2
180	Other public administration	1,005	742	73.8	43.5	18.0	5.8	6.5	19.6

- Represents zero.

B Base is less than 75,000 persons.

[1]Multiple uses allowed by respondents.

Table 7. **Uses of Computer at Work, by Sex and Intermediate Industry: October 1989**—Continued

(Numbers in thousands)

Calendar	Uses computer at work[1]													
	Electronic mail	Communications	Computer asst. design	Programming	Database	Analysis	Instruction	Sales	Invoices	Inventory	Games	Other	Don't know	Line no
6.8	5.6	9.8	2.3	6.0	10.3	7.7	5.8	5.4	6.9	8.4	1.8	8.1	1.9	121
2.3	2.1	3.7	1.4	2.5	2.9	3.7	1.1	4.0	5.9	3.6	1.5	3.2	0.8	122
6.2	6.2	9.5	3.7	6.6	7.0	9.1	2.1	10.3	16.5	9.9	3.3	8.6	0.8	123
0.4	-	0.8	0.2	0.4	0.8	1.0	0.6	0.8	0.6	0.4	0.6	0.4	0.8	124
13.6	9.7	13.6	5.8	15.5	18.4	18.4	2.9	9.7	16.5	11.7	1.9	12.6	1.9	125
8.0	4.8	9.4	1.8	7.4	10.6	7.8	4.3	8.4	16.5	12.3	2.1	5.6	1.8	126
9.5	9.0	11.0	4.1	8.9	12.9	10.4	5.4	6.0	8.4	14.9	1.7	7.2	2.2	127
0.8	1.5	-	1.5	1.5	1.5	-	0.8	3.1	0.8	6.9	-	3.1	-	128
3.0	1.0	3.0	1.5	2.5	3.5	4.5	3.0	5.5	9.0	8.5	1.0	7.0	1.5	129
3.6	3.6	7.9	2.1	5.7	8.6	8.6	4.3	5.0	10.7	14.3	-	5.7	1.4	130
4.6	3.7	10.2	1.9	7.4	10.2	9.3	5.6	4.6	10.2	14.8	-	7.4	4.6	131
3.9	5.0	4.3	2.1	2.8	10.7	6.0	3.2	5.7	10.0	13.5	1.4	7.8	1.1	132
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	133
17.4	19.3	23.9	7.0	13.5	20.9	19.3	10.8	12.6	13.8	19.4	4.2	7.6	2.2	134
9.0	5.7	8.2	5.0	8.7	11.5	8.2	3.7	3.1	6.7	16.1	1.5	8.7	2.1	135
8.3	8.3	7.4	2.9	6.2	6.6	5.4	2.9	5.0	7.4	13.2	0.8	5.0	2.9	136
13.6	15.0	15.6	5.4	19.0	21.8	17.0	6.8	1.4	3.4	4.1	-	5.4	8.8	137
18.2	16.0	14.4	8.8	17.1	22.1	19.9	9.4	2.8	8.3	23.8	1.7	7.2	1.1	138
10.4	9.7	15.1	3.0	13.8	19.1	12.8	8.1	9.7	8.7	18.1	2.7	8.7	2.3	139
3.3	4.9	4.9	-	1.6	4.9	8.2	-	8.2	4.9	14.8	1.6	-	-	140
4.1	5.9	3.6	-	0.6	3.6	1.8	1.2	3.6	3.6	5.9	1.2	7.1	0.6	141
4.5	4.3	5.6	2.5	3.3	6.4	5.5	2.5	5.1	6.1	8.4	1.1	4.2	1.2	142
3.1	0.9	4.3	0.9	0.9	4.1	5.5	2.0	2.0	2.6	7.0	-	2.4	1.4	143
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	144
2.7	1.8	3.9	1.2	0.6	4.5	2.7	1.8	2.7	5.1	10.5	1.8	4.2	0.6	145
0.7	0.3	0.1	0.2	0.3	1.2	1.8	0.2	3.0	2.5	4.0	-	1.7	0.1	146
8.2	8.2	7.6	5.7	7.0	9.5	10.1	2.5	8.9	13.9	16.5	0.6	5.7	1.3	147
7.4	5.8	9.8	6.0	6.0	9.9	6.3	4.6	9.7	8.7	7.9	1.9	8.2	0.9	148
10.9	14.4	12.6	4.6	8.6	14.7	15.2	4.0	7.5	10.6	13.5	2.6	6.0	3.7	149
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	150
4.5	7.5	5.3	1.5	6.0	9.4	3.0	4.5	4.5	9.4	13.9	1.9	3.4	1.9	151
0.0	-	1.0	-	-	-	2.1	-	3.1	6.3	7.3	-	4.2	1.0	152
15.7	11.5	21.1	3.6	10.7	16.7	11.6	7.2	10.4	12.2	10.6	1.4	12.2	2.8	153
15.4	6.5	14.1	1.4	6.7	9.7	6.7	6.8	11.9	12.6	8.9	1.5	12.2	2.1	154
14.4	17.1	33.8	7.1	15.8	23.4	17.9	8.5	10.7	10.3	11.6	1.8	14.6	4.9	155
19.9	19.5	21.5	5.0	15.9	30.8	18.2	6.3	3.6	14.9	15.9	-	7.0	1.3	156
3.0	3.3	5.0	0.8	2.9	4.4	3.7	2.1	10.6	8.1	12.4	0.5	4.3	1.3	157
7.7	9.1	12.5	2.0	7.6	9.9	10.3	6.5	18.8	21.5	25.4	1.5	7.0	2.4	158
2.2	2.5	3.8	0.6	2.1	3.5	2.7	1.4	9.4	6.1	10.3	0.4	3.8	1.1	159
9.0	13.3	20.2	4.1	12.3	21.5	19.9	9.1	11.2	8.9	9.2	1.4	17.9	4.0	160
8.0	12.3	19.0	4.4	12.5	21.8	21.6	9.2	7.2	7.7	8.2	1.0	20.4	5.4	161
9.9	14.2	21.4	3.9	12.1	21.3	18.5	9.1	14.7	10.1	10.0	1.7	15.7	2.7	162
0.1	-	-	-	-	-	-	-	-	-	0.1	0.5	-	-	163
5.6	4.8	8.1	2.2	6.2	8.1	5.5	3.5	5.3	6.6	6.2	1.6	5.0	1.2	164
8.1	9.0	13.5	3.9	11.1	14.5	10.2	6.4	6.9	9.5	8.7	2.3	7.8	2.1	165
5.3	2.8	5.6	0.9	6.9	7.8	3.7	3.1	9.0	15.9	14.6	2.2	8.1	0.9	166
2.9	1.1	3.4	0.7	1.4	2.0	1.5	1.0	3.4	2.6	2.7	0.4	2.0	0.3	167
5.6	2.7	4.6	1.0	3.3	4.2	1.7	1.0	3.9	4.8	4.8	3.3	3.3	1.2	168
7.6	3.8	9.3	2.2	5.3	10.2	6.7	8.8	0.8	4.9	5.0	2.9	9.0	1.8	169
8.7	4.0	13.8	1.8	4.7	12.6	11.6	7.1	0.5	6.3	8.0	0.7	18.9	2.5	170
6.6	2.6	5.3	0.9	3.3	6.4	4.7	2.7	0.8	6.6	3.5	0.5	6.5	1.4	171
7.9	4.1	8.8	2.8	6.8	10.8	5.0	16.0	0.5	2.9	5.1	6.3	6.5	1.8	172
2.8	1.3	3.9	0.3	2.4	4.7	2.3	3.1	0.7	1.3	1.5	0.9	3.8	1.2	173
10.6	6.5	14.1	4.5	7.6	14.8	10.4	4.5	2.7	9.4	4.8	2.0	8.1	1.3	174
(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	(B)	175
11.7	10.4	17.8	3.9	9.8	21.8	13.1	8.0	0.9	5.9	10.8	1.7	15.0	3.9	176
12.3	7.0	18.6	4.1	8.7	20.9	10.1	8.9	0.5	4.6	7.7	1.5	17.4	2.4	177
10.7	7.8	17.0	1.8	9.4	15.6	12.5	6.5	-	2.2	8.5	0.7	20.3	2.7	178
16.0	21.8	16.0	3.1	11.7	30.8	13.8	9.5	1.5	5.5	16.0	1.2	12.6	5.2	179
10.3	9.8	18.3	5.1	10.0	22.3	14.8	7.6	1.3	8.4	11.9	2.4	11.9	4.9	180

Appendix A. Definitions and Explanations

Population coverage. The figures in this report for October 1989 are sample survey data and related to the civilian noninstitu tional population of the 50 States and the District of Columbia.

Introduction of 1980 census population controls. The estimation procedure used for this survey involves the inflation of the weighted sample results to independent estimates of the civilian noninstitutional population of the United States by age, race, and sex. These independent estimates are based on civilian noninstitutional population counts from the decennial censuses and are updated with statistics on births, deaths, immigration, and emigration and statistics on the strength of the Armed Forces. Data published for 1972 through 1980 were based on independent population estimates derived by updating the 1970 decennial census counts. Starting with the data collected in the October 1981 Current Population Survey (CPS), independent estimates were based on civilian noninstitutional population controls for age, race, and sex established by the 1980 decennial census.

The April 1980 census population count differed somewhat from the independent estimates for April 1980 derived by updating 1970 census population figures. The April 1980 census count of the civilian noninstitutional population was 222,420,441, compared with the 1970 census-based figures of 217,400,244 used for the CPS. Basically, this difference had little impact on summary or proportional measures, such as medians and percent distributions; however, use of the new controls could have significant effect on the absolute numbers.

Presence of a computer. The first respondent in the household was asked if there was a computer in that household, and if so, in what year it was purchased. Respondents were also read a list of computer components and asked which of these components their computer had. (See appendix C for facsimile of questionnaire items on computer use.)

Use of computers. Each adult individual (ages 15 and above) was asked if they used a computer at work (if they were reported to be working or with a job), at school (if they were reported to be enrolled), and at home (if they were reported to live in a household where there was a computer). Interviewers preceded these questions with a statement specifying that the concept of use referred to "direct or 'hands on' use of computers with typewriter-like keyboards...questions do NOT refer to hand-held computers or computer games which have a typewriter keyboard." Each question of use (work, school, home) asked, "does...directly use a computer" at the given locale. Children (ages 3 to 14) were asked about use at school (if enrolled) and at home (if a computer was present). The same concept of "direct use" was employed in the questions for children.

Kinds of computer use at home. For individuals who responded that a home computer was available and they did use it, an additional question asked about the uses of the home computer. Adults were shown a flashcard with a list of 17 different computer uses and were asked to identify all those they used at home. Children (3-14 years of age) were shown a different flashcard with a shorter list of responses (11 choices).

Frequency of computer use at home. Both children and adults who had a computer at home and reported using it were asked how many day per week on average they had used the computer during the last month. The amount of time per use was not asked.

Kinds of computer use at work. For all adults who responded that they used a computer at work an additional question asked about uses of the computer at work. Persons were shown a flashcard with a list of 19 different computer uses and were asked to identify all those they used at work.

School enrollment. The school enrollment statistics from the current survey are based on replies to the enumerator's inquiry as to whether the person was enrolled in school. Enumerators were instructed to count as enrolled anyone who had been enrolled at any time during the current term or school year in any type of graded public, parochial, or other private school in the regular school system. Such schools include nursery schools, kindergartens, elementary schools, high schools, colleges, universities, and professional schools. Attendance may be on either a full-time or part-time basis and during the day or night. Thus, regular schooling is that which may advance a person toward an elementary or high school diploma or a college, university, or professional school degree. Children enrolled in nursery schools and kindergarten are included in the enrollment figures for regular schools and are also shown separately.

Special schools are those which are not in the regular school system, such as trade schools or business colleges. Persons attending special schools are not included in the enrollment figures.

Persons enrolled in classes which do not require physical presence in school, such as correspondence courses or other courses of independent study, and in training courses given directly on the job, are also excluded from the count of those enrolled in school, unless such courses are being counted for credit at a regular school.

College enrollment. The college enrollment statistics are based on replies to the enumerator's inquiry as to whether the person was attending or enrolled in college. Enumerators were instructed to count as enrolled anyone who had been enrolled at any time during the current term or school year, except those who have left for the remainder of the term. Thus, regular college enrollment includes those persons attending a 4-year or 2-year college, university, or professional school (such as medical or law school) in courses that may advance the student toward a recognized college or university degree (e.g., BA or MA). Attendance may be either full time or part time, during the day or night.

Two-year and 4-year colleges. Students enrolled in the first 3 years of college were asked to report whether the college in which they were enrolled was a 2-year college (junior or community college) or a 4-year college or university. Students in the 4th academic year of college or higher were assumed to be in a 4-year college or university.

Public or private school. In this report, a public school is defined as any educational institution operated by publicly elected or appointed school officials and supported by public funds. Private schools include educational institutions established and operated by religious bodies, as well as those which are under other private control. In cases where enrollment was in a school or college which was both publicly and privately controlled or supported, enrollment was counted according to whether it was primarily public or private.

Full-time and part-time attendance. College students were classified, in this report, according to whether they were attending school on a full-time or part-time basis. A student was regarded as attending college full time if he was taking 12 or more hours of classes during the average school week, and part time if he was taking less than 12 hours of classes during the average school week.

Age. The age classification is based on the age of the person at his last birthday.

Race. The population is divided into three groups on the basis of race—White, Black, and other races. The last category includes Indians, Japanese, Chinese, and any other race except White and Black. In this report, other races is not shown separately.

Hispanic origin. Information on origin or descent was obtained by asking "What is (this person's) origin or descent?" Responses generally refer to a person's perceived national or ethnic lineage and do not necessarily indicate the country of birth of himself or his parents.

Persons of Hispanic origin are persons who reported themselves as Mexican American, Chicano, Mexican, Mexicano, Puerto Rican, Cuban, Central or South American, or other Spanish origin. However, all persons who reported themselves as Mexican American, Chicano, Mexican, or Mexicano were combined into the one category—Mexican. Persons of Hispanic origin may be of any race.

Marital status. The marital status category shown in this report, "married, spouse present," includes persons who are currently married and living with their spouse.

The category "other marital status" includes persons who are single (never married), separated, divorced, or widowed.

Family. The term "family," as used here, refers to a group of two persons or more related by blood, marriage, or adoption and residing together; all such persons are considered as members of one family.

Family head. In the CPS, the term "head of family" is used to refer to persons maintaining the household. This practice was discontinued in surveys conducted after the 1980 Census of Population. However, in surveys taken prior to the 1980 Census of Population, women were not classified as the "head of family" if their husbands were present.

Head versus householder. In the 1980 census, the Bureau of the Census discontinued the use of the terms "head of household" and "head of family." Instead, the terms "householder" and "family householder" were used. Recent social changes resulted in greater sharing of household responsibilities among the adult members and, therefore, made the term "head" inappropriate in the analysis of household and family data. Specifically, the Bureau reconsidered its longtime practice of always classifying the husband as the head when he and his wife are living together.

In the 1980 census, the householder was the first adult household member listed on the census questionnaire. The instructions called for listing first the person (or one of the persons) in whose name the home is owned or rented. If a home is owned jointly by a married

couple, either the husband or the wife was listed first, thereby becoming the reference person, or householder, to whom the relationship of other household members was recorded. The same procedure was followed in the CPS surveys conducted after the 1980 census. Therefore, the Bureau is publishing the responses on relationship as given in the CPS— husband or wife could be the family householder.

Family income. In this report, family income is derived from a single question asked of the household respondent when a household first enters the sample and is updated on the anniversary of entry. Income includes money income from jobs; net income from business, farm, or rent; pensions; dividends; interest; Social Security payments; and any other money income. The income of nonrelatives living in the household is excluded, but the income of all family members 14 years old and over, including those temporarily living away, is included. It should be noted that while characteristics of the person, such as age and marital status, and the composition of families refer to the date of the interview, family income statistics refer to receipts over a 12-month period starting 12 to 16 months prior to the interview.

The money income level of families shown in this report may be somewhat understated. Income data from the October control card are based on the respondent's estimate of total family money income in broad, fixed income intervals. Income data collected in the March supplement to the CPS are based on responses to 11 direct questions asked about each person 14 years old and over and identifying 23 different sources of income in the preceding calendar year. Previous research has shown that the use of broad income intervals to record money income tends to reduce the rate of nonreporting, while increasing the likelihood that the amounts reported will be significantly understated as compared with results from more detailed questions.

Geographic regions. The four major regions of the United States, for which data are presented, represent groups of States as follows:

Northeast— Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest— Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South— Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West— Alasaka, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Symbols. The following symbols are used in the tables:

-	Represents zero or rounds to zero.
B	The base of the derived figure is less than 75,000.
X	Not applicable.
NA	Not available.

Rounding of estimates. Individual figures are rounded to the nearest thousand without being adjusted to group totals which are independently rounded. With few exceptions, percentages are based on the rounded absolute numbers.

Appendix B. Source and Accuracy of Estimates

SOURCE OF DATA

Most estimates in this report come from data obtained in October 1989 in the Current Population Survey (CPS). The Bureau of the Census conducts the survey every month, although this report uses only October data for its estimates. The October survey uses two sets of questions, the basic CPS and the supplement.

Basic CPS. The basic CPS collects primarily labor force data about the civilian noninstitutional population. Interviewers ask questions concerning labor force participation about each member 15 years old and over in every sample household.

The present CPS sample was selected from the 1980 decennial census files with coverage in all 50 States and the District of Columbia. The sample is continually updated to account for new residential construction. It's located in 729 areas and includes 1,973 counties, independent cities, and minor civil divisions. About 56,100 occupied housing units are eligible for interview every month. Interviewers are unable to obtain interviews at about 2,500 of these units because the occupants are not found at home after repeated calls or are unavailable for some other reason.

Since the introduction of the CPS, the Bureau of the Census has redesigned the CPS sample several times to improve the quality and reliability of the data and to satisfy changing data needs. The most recent changes were completely implemented in July 1985.

The following table summarizes changes in the CPS designs for the years for which data appear in this report.

Description of the Current Population Survey

Time period	Number of sample areas	Interviewed	Not interviewed
1989	729	53,600	2,500
1984	629	59,000	2,500

October Supplement. In addition to the basic CPS questions, interviewers asked supplementary questions in October about the use and ownership of computers.

Estimation Procedure. This survey's estimation procedure inflates weighted sample results to independent estimates of the civilian noninstitutional population of the United States by age, sex, race and Hispanic/non-Hispanic categories. The independent estimates were based on statistics from the 1980 Census of Population; statistics on births, deaths, immigration and emigration; and statistics on the size of the Armed Forces. The independent population estimates include some, but not all, undocumented immigrants.

ACCURACY OF ESTIMATES

Since the CPS estimates come from a sample, they may differ from figures from a complete census using the same questionnaires, instructions, and enumerators. A sample survey estimate has two possible types of error: sampling and nonsampling. The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown. Consequently, one should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates. The standard errors for CPS estimates primarily indicate the magnitude of sampling error. They also partially measure the effect of some nonsampling errors in responses and enumeration, but do not measure systematic biases in the data. (Bias is the average over all possible samples of the differences between the sample estimates and the desired value.)

Nonsampling Variability. Nonsampling errors can be attributed to many sources. These sources include the inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, respondents' inability or unwillingness to provide correct information or to recall information, errors made in data collection such as in recording or coding the data, errors made in processing the data, errors made in estimating values for missing data, and failure to represent all units with the sample (undercoverage).

CPS undercoverage results from missed housing units and missed persons within sample households. Compared to the level of the 1980 Census, overall CPS undercoverage is about 7 percent. CPS undercoverage varies with age, sex, and race. Generally, undercoverage is larger for males than for females and larger for Blacks and other races combined than for Whites. As described previously, ratio estimation to independent

age-sexrace-Hispanic population controls partially corrects for the bias due to undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics from those of interviewed persons in the same age-sexraceHispanic group. Furthermore, the independent population controls have not been adjusted for undercoverage in the 1980 census.

For additional information on nonsampling error including the possible impact on CPS data when known, refer to Statistical Policy Working Paper 3, *An Error Profile: Employment as Measured by the Current Population Survey*, Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, 1978 and Technical Paper 40, The Current Population Survey: Design and Methodology, *Bureau of the Census, U.S. Department of Commerce*.

Comparability of Data. Data obtained from the CPS and other sources are not entirely comparable. This results from differences in interviewer training and experience and in differing survey processes. This is an example of nonsampling variability not reflected in the standard errors. Use caution when comparing results from different sources.

Note When Using Small Estimates. Summary measures (such as medians and percent distributions) are shown only when the base is 75,000 or greater. Because of the large standard errors involved, summary measures would probably not reveal useful information when computed on a smaller base. However, estimated numbers are shown even though the relative standard errors of these numbers are larger than those for corresponding percentages. These smaller estimates permit combinations of the categories to suit data users' needs. Take care in the interpretation of small differences. For instance, even a small amount of nonsampling error can cause a borderline difference to appear significant or not, thus distorting a seemingly valid hypothesis test.

Sampling Variability. Sampling variability is variation that occurred by chance because a sample was surveyed rather than the entire population. Standard errors, as calculated by methods described later in "Standard Errors and Their Use," are primarily measures of sampling variability, although they may include some nonsampling error.

Standard Errors and Their Use. A number of approximations are required to derive, at a moderate cost, standard errors applicable to all the estimates in this report. Instead of providing an individual standard error for each estimate, generalized sets of standard errors are provided for various types of characteristics. Thus, the tables show levels of magnitude of standard errors rather than the precise standard errors.

The sample estimate and its standard error enable one to construct a confidence interval, a range that would include the average result of all possible samples with a known probability. For example, if all possible samples were surveyed under essentially the same general conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples.

A particular confidence interval may or may not contain the average estimate derived from all possible samples. However, one can say with specified confidence that the interval includes the average estimate calculated from all possible samples.

Some statements in the report may contain estimates followed by a number in parentheses. This number can be added to and subtracted from the estimate to calculate upper and lower bounds of the 90percent confidence interval. For example, if a statement contains the phrase "grew by 1.7 percent ($\pm$1.0)," the 90 percent confidence interval for the estimate, 1.7 percent, is 0.7 percent to 2.7 percent.

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common type of hypothesis appearing in this report is that the population parameters are different. An example of this would be comparing White computer owners with Black computer owners.

Tests may be performed at various levels of significance, where a significance level is the probability of concluding that the characteristics are different when, in fact, they are the same. All statements of comparison in the text have passed a hypothesis test at the 0.10 level of significance or better. This means that the absolute value of the estimated difference between characteristics is greater than or equal to 1.6 times the standard error of the difference.

Standard Errors of Estimated Numbers. There are two ways to compute the approximate standard error, sx, of an estimated number shown in this report. The first uses the formula

$$s_x = fs \qquad (1)$$

where f is a factor from table B-5, and s is the standard error of the estimate obtained by interpolation from table B-1. The second method uses formula (2), from which the standard errors in table B-1 were calculated. This formula will provide more accurate results than formula (1).

$$s_x = \sqrt{ax^2 + bx} \qquad (2)$$

Table B-1. **Standard Errors of Estimated Numbers**
(In thousands)

Size of estimate	Total, White, non-Hispanic	Black and other	Hispanic
10	5	6	8
25	8	10	13
50	12	14	18
100	17	19	26
250	26	30	40
500	37	43	57
1,000	52	60	79
5,000	116	126	157
10,000	162	163	183
15,000	196	178	162
25,000	247	161	(X)
50,000	327	(X)	(X)
100,000	393	(X)	(X)
125,000	394	(X)	(X)
150,000	376	(X)	(X)

X Not applicable.

Note: For a particular characteristic, see table B-5 for the appropriate factor to apply to the above standard errors.

For regional estimates, multiply the above standard errors by 0.91, 0.97, 0.99, and 1.17 for the Northeast, Midwest, South, and West, respectively.

Here x is the size of the estimate and a and b are the parameters in table B-5 associated with the particular type of characteristic. When calculating standard errors for numbers from cross-tabulations involving different characteristics, use the factor or set of parameters for the characteristic which will give the largest standard error.

Illustration. Table C shows there were 39,938,000 students in public school. Using formula (1), the appropriate factor from table B-5 and a standard error obtained by interpolation from table B-1, the approximate standard error is 1.0 x 295,000 = 295,000.

Using formula (2), and the parameters a = -0.000012 and b = 2,743 from table B-5, the estimate of the standard error is

$$s_x = \sqrt{-0.000012 \times 39{,}938{,}000^2 + 2{,}743 \times 39{,}938{,}000} = 301{,}000$$

The 90-percent confidence interval for the number of students in public school is from 39,456,400 to 40,419,600 (i.e., 39,938,000 ± 1.6 x 301,000). Therefore, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

Standard Errors of Estimated Percentages. The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends on the size of the percentage and its base. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. When the numerator and denominator of the percentage are in different categories, use the factor or parameter from table B-5 indicated by the numerator.

The approximate standard error, $s_{x,p}$, of an estimated percentage can be obtained by use of the formula

$$s_{x,p} = fs \qquad (3)$$

In this formula, f is the appropriate factor from table B-5, and s is the standard error of the estimate obtained by interpolation from tables B-2 through B-4.

Alternatively, formula (4) will provide more accurate results:

$$s_{x,p} = \sqrt{\frac{b}{x}\, p(100-p)} \qquad (4)$$

Table B-2. **Standard Errors of Estimated Percentages: Total, White, and Non-Hispanic**

Base of estimated percentage (thousands)	Estimated percentage							
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	35 or 65	50
10	5.2	7.3	11.4	15.7	21.0	22.7	25.0	26.2
25	3.3	4.6	7.2	9.9	13.2	14.3	15.8	16.6
50	2.3	3.3	5.1	7.0	9.4	10.1	11.2	11.7
100	1.7	2.3	3.6	5.0	6.6	7.2	7.9	8.3
250	1.0	1.5	2.3	3.1	4.2	4.5	5.0	5.2
500	0.7	1.0	1.6	2.2	3.0	3.2	3.5	3.7
1,000	0.5	0.7	1.1	1.6	2.1	2.3	2.5	2.6
5,000	0.2	0.3	0.5	0.7	0.9	1.0	1.1	1.2
10,000	0.2	0.2	0.4	0.5	0.7	0.7	0.8	0.8
15,000	0.13	0.2	0.3	0.4	0.5	0.6	0.6	0.7
25,000	0.10	0.15	0.2	0.3	0.4	0.4	0.5	0.5
50,000	0.07	0.10	0.2	0.2	0.3	0.3	0.4	0.4
100,000	0.05	0.07	0.11	0.2	0.2	0.2	0.2	0.3
125,000	0.05	0.07	0.10	0.14	0.2	0.2	0.2	0.2
150,000	0.04	0.06	0.09	0.13	0.2	0.2	0.2	0.2

Note: For a particular characteristic, see table B-5 for the appropriate factor to apply to the above standard errors.

For regional estimates, multiply the above standard errors by 0.91, 0.97, 0.99, and 1.17 for the Northeast, Midwest, South, and West, respectively.

Table B-3. **Standard Errors of Estimated Percentages: Black and Other Races**

Base of estimated percentage (thousands)	Estimated percentage							
	1 or or 99	2 or or 98	5 or 95	10 or 90	20 or 80	25 or 75	35 or 65	50
10	6.1	8.5	13.3	18.7	24.4	26.4	29.1	30.5
25	3.8	5.4	8.4	11.6	15.4	16.7	18.4	19.3
50	2.7	3.8	5.9	8.2	10.9	11.8	13.0	13.6
100	1.9	2.7	4.2	5.8	7.7	8.3	9.2	9.6
250	1.2	1.7	2.7	3.7	4.9	5.3	5.8	6.1
500	0.9	1.2	1.9	2.6	3.4	3.7	4.1	4.3
1,000	0.6	0.8	1.3	1.8	2.4	2.6	2.9	3.0
5,000	0.3	0.4	0.6	0.8	1.1	1.2	1.3	1.4
10,000	0.2	0.3	0.4	0.6	0.8	0.8	0.9	1.0
15,000	0.2	0.2	0.3	0.5	0.6	0.7	0.8	0.8
25,000	0.12	0.2	0.3	0.4	0.5	0.5	0.6	0.6

Note: For a particular characteristic, see table B-5 for the appropriate factor to apply to the above standard errors.
For regional estimates, multiply the above standard errors by 0.91, 0.97, 0.99, and 1.17 for the Northeast, Midwest, South, and West, respectively.

Here x is the total number of persons, families, households, or unrelated individuals in the base of the percentage, p is the percentage ($0 \leq p \leq 100$), and b is the parameter in table B-5 associated with the characteristic in the numerator of the percentage.

Illustration. Table 1 shows that of the 24,007,000 households with children from 6 to 17 years of age, 5,998,000, or 25.7 percent, have a computer in the household. Using formula (3), the appropriate factor from table B-5 (1.0), and a standard error from table B-2, the approximate standard error is 1.0x0.4 = 0.4.

From table B-5, the appropriate b parameter is 4,651. Using formula (4), the approximate standard error of 25.7 percent is

$$s_{x,p} = \sqrt{\frac{4{,}651}{24{,}007{,}000}\,25.7(100 - 25.7)} = 0.6$$

This means that the 90-percent confidence interval for the percentage of households with children from 6 to 17 with a computer in the household is from 24.7 to 26.7 percent (i.e., 25.7 ± 1.6x0.6).

Standard Error of a Difference. The standard error of the difference between two sample estimates is approximately equal to

$$s_{x\ y} = \sqrt{s_x^2 + s_y^2} \qquad (5)$$

where s_x and s_y are the standard errors of the estimates, x and y. The estimates can be numbers, percentages, ratios, etc. This will represent the actual standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. However, if there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

Illustration. Table 1 shows there were 1,430,000 households with a computer and with incomes from $15,000

Table B-4. **Standard Errors of Estimated Percentages: Hispanic**

Base of estimated percentage (thousands)	Estimated percentage							
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	35 or 65	50
10	8.0	11.3	17.6	24.3	32.4	35.0	38.6	40.5
25	5.1	7.2	11.2	15.4	20.5	22.2	24.4	25.6
50	3.6	5.1	7.9	10.9	14.5	15.7	17.3	18.1
100	2.6	3.6	5.6	7.7	10.2	11.1	12.2	12.8
250	1.6	2.3	3.5	4.9	6.5	7.0	7.7	8.1
500	1.1	1.6	2.5	3.4	4.6	5.0	5.5	5.7
1,000	0.8	1.1	1.8	2.4	3.2	3.5	3.9	4.0
5,000	0.4	0.5	0.8	1.1	1.4	1.6	1.7	1.8
10,000	0.2	0.4	0.6	0.8	1.0	1.1	1.2	1.3
15,000	0.2	0.3	0.5	0.6	0.8	0.9	1.0	1.0

Note: For a particular characteristic, see table B-5 for the appropriate factor to apply to the above standard errors.
For regional estimates, multiply the above standard errors by 0.91, 0.97, 0.99, and 1.17 for the Northeast, Midwest, South, and West, respectively.

Table B-5. **Standard Error Parameters and Factors: October 1989 and October 1984**

Characteristic	Parameters, October 1989			Parameters, October 1984		
	a	b	f	a	b	f
PERSONS						
Total, White, and non-Hispanic:						
Enrolled in school	0.000012	2,743	1.0	0.000010	2,311	0.9
Household type, age of householder, presence of children	0.000023	4,651	1.3	0.000019	3,918	1.2
Unemployed	0.000020	2,619	1.0	0.000017	2,206	0.9
Black and other:						
Enrolled in school	0.000107	3,711	1.0	0.000090	3,125	0.9
Household type, age of householder, presence of children	0.000279	6,672	1.3	0.000235	5,620	1.2
Unemployed	0.000185	3,010	0.9	0.000156	2,536	0.8
Hispanic:						
Enrolled in school	0.000320	6,551	1.0	0.000149	2,558	0.6
Household type, age of householder, presence of children	0.000550	11,244	1.3	0.000029	4,961	0.9
Unemployed	0.000260	3,154	0.7	0.000108	2,087	0.6
FAMILIES AND HOUSEHOLDS						
Total, White, and non-Hispanic:						
Household type, age of householder, presence of children	0.000013	1,846	0.8	0.000011	1,555	0.8
Household income	0.000013	2,287	0.9	0.000011	1,927	0.8
Employment status and occupation of householder	0.000033	2,390	0.9	0.000031	2,013	0.9
Unemployed	0.000020	2,619	1.0	0.000017	2,206	0.9
Black and other:						
Household type, age of householder, presence of children	0.000116	1,668	0.7	0.000097	1,405	0.6
Household income	0.000118	2,493	0.8	0.000100	2,100	0.8
Employment status and occupation of householder	0.000294	2,390	0.8	0.000247	2,013	0.7
Unemployed	0.000185	3,010	0.9	0.000156	2,536	0.8
Hispanic:						
Household type, age of householder, presence of children	0.000195	2,811	0.7	0.000022	1,592	0.5
Household income	0.000199	4,201	0.8	0.000016	2,709	0.6
Employment status and occupation of householder	0.000207	2,503	0.6	0.000121	2,086	0.6
Unemployed	0.000260	3,154	0.7	0.000108	2,087	0.6

Note: For regional estimates, multiply the a and b parameters by 0.83, 0.93, 0.99, and 1.37 for the Northeast, Midwest, South, and West, respectively. The 1984 parameters have been revised since the 1984 computer usage report was published.

to $19,999. It also shows there were 1,066,000 households with a computer and with incomes from $20,000 to $24,999. The apparent difference is 364,000. Using formula (2) and the appropriate parameters from table B-5, the approximate standard errors of these estimates are

$$\sqrt{-0.000013 \times 1{,}430{,}000^2 + 2{,}287 \times 1{,}430{,}000} = 57{,}000$$

and

$$\sqrt{-0.000013 \times 1{,}066{,}000^2 + 2{,}287 \times 1{,}066{,}000} = 49{,}000$$

respectively.

Therefore, from formula (5), the approximate standard error of the estimated difference of 364,000 households is

$$\sqrt{57{,}000^2 + 49{,}000^2} = 75{,}000.$$

This means that the 90-percent confidence interval for the difference between households with a computer and incomes from $15,000 to $19,999 and households with a computer and incomes from $20,000 to $24,999 is from 244,000 to 484,000 (i.e., 364,000 ± 1.6x75,000).

Therefore, a conclusion that the average estimate of the difference, derived from all possible samples, lies within a range computed in this way would be correct for roughly 90 percent of all possible samples. Since this interval does not contain zero, we can conclude with 90 percent confidence that the number of households with a computer and incomes from $15,000 to $19,999 is greater than the number of households with computers and incomes from $20,000 to $24,999.

Appendix C. Computer Ownership and Use Questions: October 1989 and 1984

Questions asked of persons 3 to 14 years old:

LEAD IN: This next set of questions has to do with . . .'s direct or hands on use of computers. These computers may be personal or home computers, mini computers, or mainframe computers.
These questions do not refer to hand-held calculators or games, electronic video game systems, or systems which do not use a typewriter-like keyboard.

61. Does . . . directly use a computer at school?
Yes ○
No ○

62. Does . . . directly use a computer at home?
Yes ○ *(Ask 63)*
No ○ *(Go to 65)*

63. At home, what does . . . use the computer for? *(SHOW FLASHCARD C. MARK ALL THAT APPLY)*
Word processing ○
Spread sheets ○
School assignments ○
Graphics ○
Bulletin boards ○
Programming ○
Learning to use the computer ○
Games ○
Electronic mail ○
Other ○
Don't know ○

64. During the last month, on average how many days per week did . . . use the computer at home?
7 days ○
6 days ○
5 days ○
4 days ○
3 days ○
2 days ○
1 day ○
Less than once a week ○
Not used in last month ○
Don't know . . . ○

65. Was . . . attending or enrolled in a regular school in October, 1988, that is, October of last year?
Yes ○
No ○

END QUESTIONS

Questions asked of persons 15 years old and over:

LEAD IN: This next set of questions has to do with . . .'s direct or hands on use of computers. These computers may be personal or home computers, mini computers, or mainframe computers. These questions do not refer to hand-held calculators or games, electronic video games, or systems which do not use a typewriter-like keyboard.

ASK ITEMS 44, 45, and 46 ONCE OF FIRST RESPONDENT IN HOUSEHOLD. TRANSCRIBE DIRECTLY FOR FOLLOWING RESPONDENTS AND BEGIN WITH ITEM 47.

44. Is there a computer in this household?

- Yes ○ *(ASK 45)*
- No ○ *(FILL 47)*

45. In what year was the computer purchased?

- 1989 ○
- 1988 ○
- 1987 ○
- 1986 ○
- 1985 ○
- 1984 ○
- Before 1984 ○
- Don't Know ○

46. Which of the following items does this computer have? *(READ LIST – MARK ALL THAT APPLY)*

- Floppy disk drive ○
- Hard disk drive ○
- Telephone modem ○
- Laser printer ○
- Joystick or mouse control ○
- Color monitor ○
- Dot matrix printer ○
- Plotter ○
- Don't know ○

47. CHECK ITEM

- Entry or NA in item 20A or item 21B ○ *(ASK 48)*
- All others ○ *(GO TO 50)*

48. Does . . . directly use a computer at work?

- Yes ○
- No ○

49. At work, what does . . . use the computer for? *(SHOW FLASHCARD A. MARK ALL THAT APPLY)*

- Word processing ○
- Bookkeeping ○
- Computer-assisted design (CAD) ○
- Calendar/scheduling ○
- Electronic mail ○
- Inventory control ○
- Programming ○
- Desktop publishing/ newsletters ○
- Communications ○
- Analysis ○
- Spread sheets ○
- Sales ○
- Games ○
- Invoicing ○
- Graphics ○
- Databases ○
- Instruction ○
- Other ○
- Don't know ○

50. CHECK ITEM

- Entry of "Yes" in item 30 ○ *(ASK 51)*
- All others ○ *(GO TO 52)*

51. Does . . . directly use a computer at school?

- Yes ○
- No ○

52. CHECK ITEM

- Entry of "Yes" in item 44 ○ *(ASK 53)*
- All others ○ *(GO TO 56)*

53. Does . . . directly use a computer at home?

- Yes ○ *(ASK 54)*
- No ○ *(GO TO 56)*

54. At home what does . . . use the computer for? *(SHOW FLASHCARD B. MARK ALL THAT APPLY)*

- Word processing ○
- Household records/finances ○
- School assignments ○
- Connect to computer at work/work at home ○
- Home-based business ○
- Bulletin boards ○
- Desktop publishing/newsletters ○
- Learning to use the computer ○
- Spread sheets ○
- Programming ○
- Graphics ○
- Games ○
- Telemarketing ○
- Databases ○
- Electronic mail ○
- Other ○
- Don't know ○

55. During the last month, on average how many days per week did . . . use the computer at home?

- 7 days ○
- 6 days ○
- 5 days ○
- 4 days ○
- 3 days ○
- 2 days ○
- 1 day ○
- Less than once a week ○
- Not used in last month ○
- Don't know ○

Flashcard

Ⓐ

(Item 49)

USES OF COMPUTER AT WORK — Adults

- Word processing
- Bookeeping
- Computer-assisted design (CAD)
- Calendar/scheduling
- Electronic mail
- Inventory control
- Programming
- Desktop publishing/newsletters
- Communications
- Analysis
- Spreadsheets
- Sales
- Games
- Invoicing
- Graphics
- Databases
- Instruction
- Other

Ⓑ

(Item 54)

USES OF COMPUTER AT HOME — Adults

- Word processing
- Household records/finances
- School assignments
- Connect to computer at work/work at home
- Home-based business
- Bulletin boards
- Desktop publishing/newsletters
- Learning to use the computer
- Spreadsheets
- Programming
- Graphics
- Games
- Telemarketing
- Databases
- Electronic mail
- Other

Ⓒ

(Item 63)

USES OF COMPUTER AT HOME — Children

- Word processing
- Spreadsheets
- School assignments
- Graphics
- Bulletin boards
- Programming
- Learning to use the computer
- Games
- Electronic mail
- Other

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